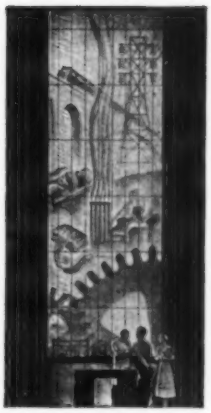
MEDICINE SURGERY

INDUSTRIAL HEALTH
OCCUPATIONAL DISEASES
TRAUMATIC, INDUSTRIAL



INDUSTRIAL HYGIENE
INDUSTRIAL MEDICINE
& RAILROAD SURGERY

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NEXT MONTH

Conference on Industrial Health

American Association of Industrial Physicians and Surgeons
American Industrial Hygiene Association
National Conference of Governmental Industrial Hygienists
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WHETHER 1944's Woman in Industry is ill, or imagines it, industrial medicine can find the answers, an attractive girl doctor who found them by working incognito in slacks four months at Lockheed told the WESTERN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS at the Biltmore yesterday. Her topic, 'Psychogenic Factors in the Care of Women Workers,' sounded formidable, and convention delegates settled back for a technical lecture. But when the slim girl in violet, with a Dubonnet hat, took the microphone the doctors sat up with a new interest in women workers' physical problems." That is the way the *Los Angeles Times* of May 7 introduced DR. MARION J. DAKIN, of Lockheed's medical department to its readers; and with the same words we commend her to ours. Without more ado, therefore, DR. DAKIN, who has something to say and says it exceedingly well, has the microphone, as it were, beginning on page 459. . . . DR. JOSEPH SHILEN, and his associates in the Bureau of Industrial Hygiene of Pennsylvania's Health Department, present an authoritative analysis of the health hazards incident to the extraction of beryllium oxide from beryl (page 464). For reasons best known to those who have to do with the processes involved, this comes at the time when just such an analysis is badly needed. . . . DR. FRED J. WAMPLER could say a very great deal more about "The Industrial Physician's Opportunity" to advance medical knowledge than he had time for on the "War Conference" program at St. Louis. But what he said there (page 470) introduces the subject with attractive invitations to its pursuit and development. For example, "the industrial physician has the opportunity to invent and test out new techniques for discerning deviations from the normal in man long before the man himself is aware of trouble." It is true, as DR. HAZLETT reminds (page 472), that "the deliberate clinical study of the apparently healthy individual and of disease

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WHAT IS NEEDED...

VACATIONS OR VITAMINS?

● When production lags in hot weather—when workers perspire excessively and become nervous and irritable—vitamin replenishment may be indicated to combat symptoms leading to slow-ups and absenteeism.

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[1] Cornbleet, T., Kirch, E. R., and Bergeim, O., *J. A. M. A.*, 122: 426, June 12, 1943

ARMY E NAVY

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DETROIT, MICHIGAN

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is more frequently a hoped for ideal than a practical possibility." But a man will ordinarily consider himself "healthy" until he is sick enough to require medical attention—in other words, if he is left to himself, he isn't sick at all until he needs to be cured. Prevention, therefore, in terms of that individual, hasn't a chance. The gap is wide open for the *industrial* physician's technique to discover what happens in it, and for the *industrial* physician's records, and statistical analyses therefrom, to interpret what the things that happened may mean. "A hoped for ideal"—but FOULGER has already gone far with the one, and FULTON with the other, and a good many are even now beginning to combine the two. . . . COLONEL JOHN ANDREWS is the one man in the country who is in position to be an authority on the "Demobilization and Readjustment of Veterans." It is his paramount interest, professionally and personally, to know all there is to be known about it. His comprehensive article (page 472) reflects both his knowledge and his interest; it brings the returning veteran "right to the factory gate". . . . DR. F. E. POOLE'S statistical analysis of the employment records of 777 cardiacs at Lockheed (page 479) begins, "Mindful of the fact that any information we might be able to disclose would benefit not only ourselves but all industrial physicians. . . ." This study, although it is preliminary, and limited in scope—being confined to a group of terminated employees from one plant, is an important step toward the development of a solution of the problems involved in the employment of cardiacs—a subject which has needed just such statistics as this, and many of them. In the matter of averages, this is like other problems in that the experience may not appear as favorable in small groups as in large ones; but here, particularly, the small group's experience with those individual cases which are on the wrong side of the average is probably more noticeable because it is certainly more spectacular. For this reason, and also because there are so many kinds and degrees of reaction to heart conditions, it is desirable that the statistics be as voluminous as possible. Hence the more cases the better. . . . MR. DOUGLASS CAMPBELL (page 486), qualified by long experience to discuss Workmen's Compensation practice, does so, in what he calls "harsh words." His criticisms, however, are constructive, and they should be carefully read and seriously studied —especially in view of the expected volume of compensation claims which those who are preparing for postwar readjustments are already referring to as a "flood.". . . DR. FISHBEIN and his associates (page 489), present the results of another vitamin experiment among industrial employees. . . . AND DR. MCNALLY adds to the growing data on industrial toxicology by submitting the postmortem studies in three cases of death from TNT poisoning. . . . DR. SAPPINGTON'S critique on the widely publicized book, "1021 Answers to Industrial Health and Safety Problems" (page 495), is constructively designed. This volume reflects a vast amount of diligent work in its assembly—emphasizing the fact that the published data on industrial hygiene which is now available for those who are interested to make compilations from, has grown to vast dimensions. . . . THE "Physical Demands and Capacities Analysis" published by Permanente Foundation (page 496), is a real contribution to the study of occupational placement. This work is not presented as the last word on the subject, but, on the contrary, is offered as a significant beginning. It *is* significant; the information it contains will undoubtedly help to alleviate many a rehabilitation headache. . . . DR. A. C. DICK (page 58) makes two important contributions to the quality of this issue. One is the suggestion regarding the new department, "Armchair Philosophy and Research," which we hope will be a permanent department, filled altogether by readers' contributions. The other is the analysis of a medical

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Antiseptics and Their Action, R. M. Freeman: *Industrial Medicine*, February, 1940.

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PERSONAL

DR. HEDWIG S. KUHN, Hammond, Indiana, is the author of the new book "Industrial Ophthalmology," just published by C. V. Mosby Company, St. Louis. The publication of this book is an event in industrial medicine. It is the first treatise on ophthalmology with definite relation to and special purpose for industry, and the first textbook containing a plan of, and complete information concerning, specific job placement from the visual capacity and work requirements standpoint. Review later.

LIEUT.-GENERAL WILLIAM S. KNUDSEN, who in 1938 established the KNUDSEN AWARD in industrial medicine given yearly for the most outstanding contribution to that specialty by an industrial physician, is now the recipient of an award on his own account. On May 25, in Washington, he was given the Distinguished Service Medal for outstanding accomplishments in war production. The award was made by Secretary of War Stimson, in a brief ceremony attended by high army officers.

DR. R. C. KIMBALL, who was recently elected President of the ASSOCIATION FOR THE ADVANCEMENT OF INDUSTRIAL MEDICINE AND SURGERY, has also been elected Chairman of the New York State Medical Society Section on Industrial Medicine and Surgery.

LIEUT.-COMMANDER NEIL E. ECKELBERRY, M.C., U.S.N.R., has recently returned after serving 22 months in the South Pacific area. He is now stationed at the U. S. Navy Yard at Portsmouth, New Hampshire.

MISS SARAH E. ALMEIDA, R.N., has been appointed industrial nursing consultant in the Division of Occupational Hygiene, Massachusetts Department of Labor and Industries.

MAJOR JOSEPH B. FICKLEN III, U. S. Public Health Service, has been assigned to the Industrial Hygiene Division of the Los Angeles County Health Department. MAJOR FICKLEN graduated from the Cali-

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fornia Institute of Technology in 1928, and has had many years of experience in the industrial hygiene field. For the past 20 months he was Director of Safety in an eastern munitions factory employing more than 10,000 persons. During that period no fatalities and only two serious accidents were experienced there. Three years ago he served both as a special health officer for the Los Angeles County Health Department and as consultant to the City Health Department in the field of occupational disease. For 13 years prior to that he was in charge of a large casualty insurance company's laboratory, investigating explosion hazards and other safety problems. He has traveled extensively, studying occupational disease problems in other countries. He is the author of the book, "Manual of Industrial Health Hazards," as well as numerous scientific and technical articles, and has translated a Russian book on methods of estimation of toxic materials in air.

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DOUGLAS RICHARDS, 33-year-old deaf and blind mute, holds the unique record of being the only man so handicapped who works full time in a war plant and receives full-time pay. A bench hand in the Belleville, New Jersey, plant of Walter Kidde & Company, he utilizes his highly developed sense of touch to perform a variety of operations connected with the manufacture of carbon dioxide fire-fighting and life-saving equipment for our armed forces. Wounded war veterans forced to learn new trades to fit their handicaps will be heartened by the fact that RICHARDS, with three serious handicaps, quickly learns new operations taught to him on a plan of work simplicity—in spite of the fact that he has never worked before and has had no training for any trade and limited training to read Braille.

Here he is shown being instructed in the operation of a drill press by HOWARD H. GILLINGHAM, foreman of the repair department, who spells out the directions on the palm of RICHARD'S hand. Morale of workers in the Kidde plant is kept high by the fine example of courage and perseverance of this man who wishes above all to help win the war.

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GENERAL

UNDER the auspices of the New York State and Ontario Health Departments, Newburgh, N. Y. (population 32,000), and Brantford, Ont. (population 32,000), will soon have sodium fluoride added to their water supplies as a part of a 10-year experiment to study this method of controlling dental caries. Sodium fluoride will be added at the rate of one part fluoride to a million of water. The town of Kingston, N. Y., 32 miles north of Newburgh, has agreed to forego the use of fluoride for the 10-year period so that a control group can be provided for the experiment.

—*Journal of the American Dental Association*, Mid-monthly Issue, May 15, 1944, quoting *Time*, April 24, 1944.

No Meeting

WOULD you be good enough to have inserted in *The Pennsylvania Medical Journal* the following statement: "On account of the tremendous transportation problem, the Pennsylvania Railroad management has asked that the Pennsylvania Railroad Surgeons Association not hold a meeting this fall." This memorandum is made so that the railroad surgeons over the state may know of the decision of the management of the Pennsylvania Railroad. JOSEPH SCATTERGOOD, M.D., Secretary, Association of Surgeons of the Pennsylvania Railroad, West Chester, Pennsylvania.

—*Penn. Med. J.*, May, 1944.

Wage Percentage Insurance

THE CIO Amalgamated Clothing Workers' union in 14th biennial convention, May, 1944, instructed its executive board to seek contracts requiring employers to make wage percentage payments for life, health, accident, and other insurance benefits for its 325,000 members, the benefits to include hospitalization and medical care. Some 150,000 members, in the men's and boys' clothing and laundry industries, already are covered by insurance agreements. The employers pay 2% of the employees' salaries to the Amalgamated Health & Life Insurance company, organized by the union under New York laws last year. The employees receive a policy providing a $500 death benefit, with $12 weekly for men and $8 for women for 13 weeks each year for time lost through sickness or acci-

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dent. It is the only labor union having its own insurance company. More than 15,000 members in the Chicago clothing industry have been receiving the benefits provided by the Chicago union's insurance company, which is separate from that of the international union, as well as hospitalization and medical care.

Dental Examinations

LARGE industrial plants in Michigan, interested in including dental examinations with their medical examinations, have found that such examinations as now carried on are too time consuming. The State Department of Health is making a study of dental examinations through the cooperation of the State Industrial Hygiene Bureau and the

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TO provide an organization, not for pecuniary profit, in which all agencies and societies, both medical and lay, concerned with the problems of industrial health can hold membership and can meet together in conference for the study, discussion and careful consideration of all industrial health problems and procedure; to engage in scientific research to determine the cause, nature, prevention and cure of diseases and injuries of occupations; to assist in establishing and supervising industrial health clinics to serve small industries; to establish and maintain hospitals which will furnish facilities for the care, treatment and study of occupational injuries and diseases; to make surveys of industrial medical services and recommendations for their improvement; to solicit, receive and administer funds for any purpose that will advance and/or improve industrial health; to establish undergraduate and/or post-graduate courses in industrial medicine and surgery and/or to cooperate with medical schools and industries in maintaining such courses; and to use all those means, which from time to time, may seem wise, for the advancement of industrial health.

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NEW! Rapid Sulfonamides Test Kit

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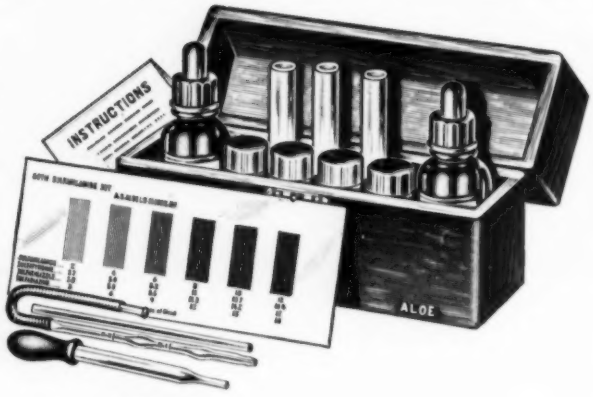

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A. Goth, "A Simple Clinical Method for Determining Sulfonamides in Blood," *Journal of Laboratory and Clinical Medicine*, Vol. 27, No. 6, March 1942.

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The method is sufficiently accurate for clinical determinations. The accuracy of the test is limited only by the visual method of color comparison. If greater accuracy is required and laboratory facilities are available, the reading of the color can be done with a photoelectric colorimeter using an appropriate calibration curve.

L3-780—Goth Sulfonamides Test Kit, size 8½ by 2½ by 4½ inches, complete with sufficient tablet form reagents (except distilled water and acetone) for 100 tests, color chart and directions, each.....$12.50

Clinical Laboratory Division

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State Division of Dental Health. DR. WERTHEIMER, dentist of the Division of Dental Health, has succeeded in limiting the examination, including x-rays, to an average of six and a half minutes per person examined and feels that with assistance of a dental hygienist in making clinical and x-ray examinations, and keeping the records, the time could be further reduced, perhaps to five minutes per individual. The bite-wing x-rays revealed impacted and embedded teeth, residual tooth roots, cystic formations and varying degrees of pyorrhea. Discovery was made of a case of oral dermatitis resulting from material used in an artificial denture. Gingivitis demonstrating bad mouth hygiene, in some instances, was undoubtedly due to systemic conditions. Following this initial demonstration, some of the large Michigan industrial plants feel that dental examination is now within practical limits, and that they may be able to include some form of dental examination and referral service in the future in their plants.

—*Industrial Hygiene News Letter*, Industrial Hygiene Division, U. S. Public Health Service, April, 1944.

Industrial Hygiene for Nurses

A COURSE in industrial hygiene for nurses is being given from March 23 to June 15 at Simmons College, School of Nursing, Boston, Massachusetts. The course covers material in advance of that in the Principles of Industrial Nursing given during the fall session. This course will cover problems of occupational diseases, industrial accidents and their prevention, and medical, nursing and safety practices designed to safeguard the health of workers. Short units in nutrition, dermatitis, vision conservation, tuberculosis, and industrial relations are covered by a group of special lecturers.

Wayne County Program

THE Council approved a program of action upon recommendation of the Industrial Health Committee. DR. C. K. HASLEY, Chairman of the Committee, and DR. F. T. MCCORMICK, member of the Committee who drafted the original program for presentation, were present and explained the details. A letter of explanation together with requests for individual cooperation will be sent soon to each member of the Society. Roughly, the program is designed to stimulate interest in health problems among the smaller industrial plants. The Wayne County Medical Society has long been anxious to assume leadership in developing a wider distribution of scientific assistance in the interests of the worker, the employer and the general community, as well as of the medical profession.

—*Detroit Medical News*, May 8, 1944.

Synthesis of Quinine

SYNTHESIS of quinine is announced at Cambridge, Massachusetts, by the Polaroid Corporation. Many questions regarding the new synthetic are still unanswered. At present, the synthetic quinine is only a laboratory product and has been produced only in minute quantities. However, it is the exact duplicate of the highly-complicated architecture of the natural quinine molecule. From the commercial standpoint, it must be learned whether production of the synthetic is practicable in view of the fact that it is the result of many complicated reactions. The questions of yields, which, on a laboratory basis, are only 1%, also must be established for commercial production. Fortunately the starting materials are said to be of low cost.

Service Women's Health

HEALTH among uniformed women of the armed forces is at a high level, and the average Wac, Wave, Woman Marine, or Spar improves physically after her enlistment. Waves have increased their weight by an average of five pounds and were found to be without nutritional deficiencies in clinical tests, according to U. S. Navy findings in a test group of 6,400. In another test group, comprising 2,000 Waves, posture and foot defects showed improvement after a period of training. Decided improvement in posture and carriage, considered important to physical health, was accomplished through training. Women Marines show a gain of five to six pounds in weight after entry into the Women's Reserve. Health safeguards for Wacs, Waves, Spars and

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1. Meaker, S. R., Gonorrhea, J.A.M.A., 87:1377(1926)
2. Kleine, H. L., Cervicitis, J. Mo. State. M.A., April 1939.

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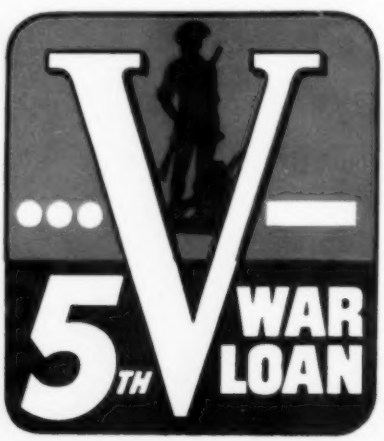
CUTICURA *Soap* AND *Ointment*

Women Marines include preventive measures, established through inoculations, physical training and proper food, good housing and living conditions, and proper recreation, according to Army and Navy officials. Those who require it receive ample, prompt medical or hospital care.

Westinghouse Re-Employment

THE WESTINGHOUSE re-employment program provides for these measures to be taken in all of the company's principal plants in some 25 cities: (1) Assign an industrial relations representative to be responsible for re-establishment of returning veterans, coordinating the services of the employment, training and medical departments and shop and office supervisors. (2) Survey all positions in the plants, listing all types of work which can be performed by people with various physical handicaps. (3) Designate a physician in the medical department to be responsible for thorough physical examination of all returning veterans and to supervise special medical attention and consultation required by disabled veterans. (4) Assure continuous service credit for time spent in the armed forces by employee veterans. (5) Make every effort to place returning employee veterans who are able to work on the employment rolls at once. (6) Maintain close contact with local and state agencies involved in the welfare of returning veterans. The company's experience to date has shown that most of the returning veterans are normal in mind and body and desire to return to work in the plant and at the jobs they left. A survey completed in a number of Westinghouse plants discloses that approximately 19% of the occupations could be performed satisfactorily by most persons having only one leg, 17% by operators who must use crutches, 83% by men with only one eye, and 82% by deaf persons. With some 20,000 former employees on leave of absence with the armed forces, Westinghouse already has re-employed approximately 1,800 veterans who have been honorably discharged from the military services, many of them with physical handicaps received in action.



Merchant Marine Health

THE medical program calling for signing-on examinations of merchant seamen will have been extended to 19 major United States ports by the end of June. The first examination center was opened in New York, January 26, 1944, and similar facilities have been established in 14 other ports. The program is designed to discover acute surgical cases and communicable diseases and secure prompt treatment. Recently, of 200 men found with chronic diseases, 50 were at sea within a week after a newly discovered medical treatment was made available for them. Others were physically fit for assignment to duty soon afterward. Interest in the health of merchant seamen, however, does not end with their signing-on examinations. Medical care aboard ship is being provided as rapidly as men can be trained in practical medicine. Men with a junior assistant purser-pharmacist's mate rating are being graduated from the U. S. Maritime Service Hospital Corps School at Sheepshead Bay, New York, at the rate of 50 a week. One out of every four merchant ships now carries a man with such a rating. Presence of trained medical personnel aboard a merchant ship makes available to merchant sea-

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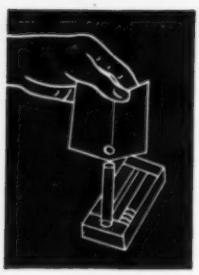

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men the latest in modern treatment, such as plasma, sulfa drugs, and penicillin.

Industrial Ophthalmology

THE National Society for the Prevention of Blindness opened a course of five lecture conferences April 26, conducted on the following Thursday evenings through May 25. The course was offered without charge to ophthalmologists and covered acute need for ophthalmologists in industry; industrial eye hazards (protection equipment and its maintenance); first aid (facilities, treatment, scope, limitations and control); industrial nursing; illumination for industry; visual examination; refraction and prescription for industrial working conditions; job analysis for visual requirements, and governmental and voluntary health agencies. The lecturers included JOSEPH LO PRESTI, assistant surgeon, who was assigned in 1943 by the U. S. Public Health Service to the National Society for the Prevention of Blindness to carry on a program in the field of industrial hygiene. A group of cooperating agencies, together with the U. S. Public Health Service, has been developing an industrial eye hygiene program with emphasis on visual job analysis. The results of the survey are to be made available later. Thus far the work has included a study using an Ortho-Rater at Stevens Institute, Hoboken, New Jersey, covering a group of 336 first-term students enrolled in the drafting course. Efforts at the Visual Institute, Purdue University, Lafayette, Indiana, where the Ortho-Rater was developed, were also surveyed. In addition, a comprehensive industrial visual survey was carried out in Connecticut to obtain a cross section of industrial vision practices in a typical, concentrated industrial region, to compare various methods of examination, particularly screening tests, for vision and to derive recommendations for methods of appraising and improving existing visual conditions, both of employees and of plants which may serve as a pattern to be followed elsewhere.

—*J. A. M. A.*, May 13, 1944.

"Haw! Haw!"

A NEWSPAPER photograph shows a group of LAUGHING workers, mostly girls, on strike in a Detroit plant wherein the manufacture of precious blood plasma and penicillin has been halted by the work stoppage. We suggest that Army trainees gather up everyone of these strikers and make them spend one day in an army hospital. After this experience if they did not plead to get back at once to their jobs we should be in favor of presenting them with Nazi iron crosses and placing them on the Gripsholm to exchange for Americans.

—ROBERT P. VANDERPOEL, Financial Editor, in *Chicago Herald-American*, May, 26, 1944.

Re-employment Policies

THE policies and principles governing administration of the re-employment provisions of the Selective Training and Service Act of 1940 have been outlined by National Headquarters of Selective Service in the form of a memorandum issued for the guidance of local boards and the re-employment committeemen attached thereto. The memorandum analyzes each section of the act as it applies to re-employment of veterans; outlines the principles to be followed in determining the "permanent" or "temporary" nature of employment, deals with problems affecting qualifications of veterans for reinstatement and the duties and obligations of employers, and answers questions concerning seniority rights. Highlights include: Seniority rights accumulate during the veteran's period of active service in the armed forces in the same manner as they would have accumulated had he remained continuously at work in his civilian occupation. A veteran, in order to claim reinstatement in a position, must be qualified to perform the duties and functions of that position. If unable to qualify for an upgraded job, he is, nevertheless, entitled to a position equal in seniority, status and pay to the one which he left. A veteran is entitled to reinstatement in his former position or one of like seniority, status and pay, even though such reinstatement necessitates the discharge of a non-veteran with greater seniority. A veteran is entitled to his former position or one of like seniority, status and pay, and may refuse another, even though the pay is greater and offers other advantages. Conscientious objectors have no re-employment rights under the law and the Selective

. . . in the treatment of uncomplicated, inflamed, painful, bleeding hemorrhoids not requiring surgical intervention. They are anatomically correct—easily retained above the anal sphincter.

After rectal operative procedures, Wyanoids are of service in allaying pain, controlling tenesmus, checking inflammation. In boxes of 12, with detachable label.

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Extract of Belladonna 0.5% (equivalent total alkaloids 0.0063%). Ephedrine Sulfate 0.10%. Zinc Oxide, Boric Acid, Bismuth Oxyiodide, Bismuth Subcarbonate and Balsam Peru, evenly distributed in a bland Cocoa Butter base.

WYANOIDS REG. U. S. PAT. OFF. **HEMORRHOIDAL SUPPOSITORIES** *Wyeth*

All THE VIRTUES OF Coal Tar

DERMATOLOGISTS seem agreed that "the therapeutic action of coal tar depends on the aggregate effect of its components."

Hence the necessity for a preparation "delivering" a *whole* coal tar (not a fractional distillate), in order to achieve maximum antiseptic, antipruritic, keratoplastic and reducing action.

Daxalan is such a comprehensive agent—preferred by many outstanding clinicians because it is rigidly standardized as to physical and chemical characteristics, and is a delightfully smooth, homogenous, almost black (not light green or white) ointment.

Results from Daxalan applications in *psoriasis, eczema, dermatitis* and similar affections, have been excellent.

May we send a trial supply?

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DAXALAN

—WHOLE CRUDE COAL TAR
RIGIDLY STANDARDIZED

THE MIND OF THE INJURED MAN

A Study of Trauma and the Nervous System, with Particular Reference to Neuroses Associated with Injury

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Pruritus Ani

By Charles J. Drueck, M.D., F.A.C.S.
238 pages; 30 illustrations

Sixty per cent of the adult population is said to be afflicted with pruritus perinei and yet the bedside physician does not know how to handle it. This important book is the first comprehensive monograph on this complex and distressing affliction. Published in 1938 at $5.00—Now..$3.00

INDUSTRIAL MEDICINE BOOK COMPANY
605 N. Michigan Ave., Chicago, Illinois

Service System has no responsibility to aid them in regaining former positions or obtaining new positions.

NATIONAL Industrial Conference Board's September, 1943, summary of "Personnel Practices Affecting Factory Wage Earners," from a questionnaire survey of 1200 companies (about 2,500,000 workers) shows that 53% have "company nurses," 3% have "nursery schools," 83% provide salt tablets, 15% furnish vitamins.

THE JAMES S. KEMPER Foundation has given $2,500 to the department of industrial hygiene, University of Pittsburgh School of Medicine, to establish a fellowship in industrial medicine. The purpose of the fellowship is to make available to a qualified physician the opportunity to pursue graduate work in preparation for a career in industrial medicine. Additional information may be obtained from DR. WILLIAM S. MCELLROY, dean of the university, Pittsburgh.

COMMENT and OPINION

"Surprised?"

THE Army Induction Board has reported that they are finding it necessary to reject 14% of those who have been in government employ as mentally unbalanced.

—*The Mining & Contracting Review*, March 15, 1944, quoting Uren in *Nevada City Nugget*.

That Headache

I CALCULATED that if all the aspirin actually consumed in this country had been ordered by medical men in the customary manner, each of 150,000 medical personnel would be daily engaged in writing 16 such prescriptions. At a standard fee of $2, this would amount to the not inconsiderable sum of $175,000,000 a year, largely for the alleviation of quite transient, if unpleasant, symptoms. The presently constituted profession, of which I am a member, is quantitatively incapable of handling even the number of cases obviously demanding skilled attention, without assistance. Still less can they cope with the mass of trivial injuries and transient symptoms, which, nevertheless, require some attention. To persist in the old, philosophic belief that the actual bodily presence of a medical man is utterly necessary before any treatment can be instituted would appear capable of serious modification. In fact, a great deal of such treatment is now carried on over the telephone by the medical profession itself."

—O. B. GIBBS, M.D., Director of Medical Research, Plough, Inc., Memphis, Tennessee, addressing the Scientific Section of the Proprietary Association of America, May 15, 1944.

NOT "He Who Runs May Read"

WHILE the chest x-ray is the best single method of determining whether a person has tuberculosis or not, a child-like faith must not be used. Early tuberculosis may be present and not be revealed because only 75% of the lungs can be seen (those areas below the level of the diaphragm and behind bones and the heart are not seen). Shadows cast by tuberculosis may be identical with those cast by other diseases (many persons have been admitted to sanitariums because of this fact). Tuberculosis lesions elsewhere, as in kidneys or bones, are not visualized, and large numbers of tubercle bacilli may be eliminated through the urine or discharging sinuses. Many cases are on record in which the sputum contained tubercle bacilli and yet the chest x-ray was negative. — J. A. MYERS, M.D., in *Journal-Lancet*, July, 1943. (As we have so often said before, the laboratory cannot make a diagnosis. There is no substitute for brain cells.—ED.)

—From *Clinical Medicine*, May, 1944.

Nutrition Research

PHYSIOLOGIC studies, involving all the related sciences, are clearly the essential basis for advancing our knowledge of nutrition. These findings must also provide the basis for planning equally important studies on the food supply. They should serve to emphasize, for example, that nutritional quality should be given adequate consideration in food production. The early vitamin discoveries gave a large impetus to the production of "protective foods." Yields of vegetables and fruits were stepped up through breeding and selection and improved cultural practices. Seed was bred and selected for drought resistance, heat or cold resistance, and market quality. But practically no attention was given to the most important attribute, nutritional quality. Recent studies have shown that genetic, soil, and climatic factors all influence the nutritive value of food crops. Here lies an important and promising field of study for improving nutrition. Obviously it calls for the application of as fundamental and as varied scientific knowledge and skills as does the field of nutrition requirements wherein lie the ultimate objectives. The goal of nutritional quality must be kept in mind in all the processes which food undergoes from the farm to the table, for here again market quality and palatability are not enough. The war emergency has given great impetus to research on food processing in the factory and in the home, with respect to the retention of nutrients. But much remains to be learned. Particularly, the developments in the processing of army and Lend-Lease foods require further study

and testing for peacetime use. The greater conservation of the nutrients of our food supply as produced would go far in providing a cheaper and better diet.

—From "The Over-all Field of Nutrition Research," in *Nutrition Reviews*, May.

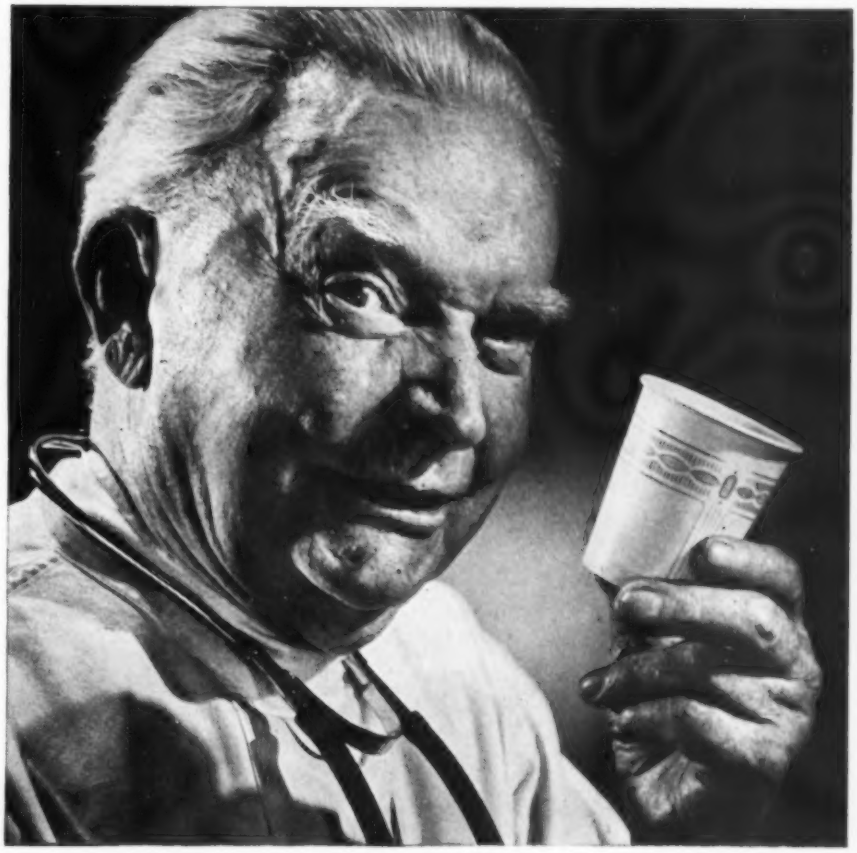
Maternity Leave

PREGNANCY shall not be grounds for dismissal of any woman employee. If the work in which such employee is customarily engaged is, in the opinion of her physician, rendered difficult or dangerous because of her condition, the company shall, upon receipt of such physician's written statement, transfer her to suitable work. Any woman employee who is pregnant shall, upon presentation of doctor's certificate stating the probable date of her confinement, be granted maternity leave of not less than six weeks before delivery and two months after delivery. Additional leave up to a total of one year shall be granted at such employee's request, upon presentation of a doctor's certificate stating the necessity therefor. Any woman employee who is absent from work on maternity leave shall continue to accumulate seniority during the first three and a half months of her absence and thereafter shall retain her full seniority until the expiration of one year from date of leaving. At such employee's written request, all unused sick leave allowance with pay in both the current and preceding years, and all or any part of her current unused vacation allowance with pay, shall be charged to maternity leave and compensation accordingly shall be paid to her at the beginning of leave. Any woman employee absent on maternity leave shall, upon returning to work, be returned to her former job at a rate of pay not less than currently paid on the job at which she was formerly employed; or if such work is not available or not suitable, she shall be transferred to another job of equivalent value, providing that such transfer shall not be made against her consent and shall not involve work for which she is not qualified.

—From "Suggested Standards for Union Contract Provisions Affecting Women," prepared by the Women's Bureau, Mary Anderson, Director, U. S. Department of Labor.

Small Plants

DR. VICTOR G. HEISER, Medical Consultant, National Association of Manufacturers, speaking to the Forum for Chief Engineers of the National Conservation Bureau, May 16, emphasized that industrial health has a definite bearing on industrial safety—that the "well worker will be a more safe worker. The development of industrial medicine and industrial health work in industry follows the development pattern of the industrial safety movement. Larger industrial plants were quick to adopt industrial safety work, not alone because of its humanitarian



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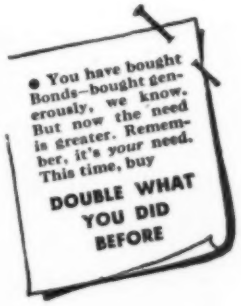
Of course Dixie Cups won't stop colds once started, but they *can* help prevent their being passed along to others. A crisp, clean Dixie Cup or Vortex Cup breaks the possible chain of infection resulting from mouth contact where the lips of others have touched.

Nowhere is this fact more important than in today's industrial plants where man-hours must be rigidly conserved, and epidemics of illness constantly combatted.

Dixie Cups at water coolers are proving an effective weapon in defending the health of workers. And in the cafeterias the time they save in dishwashing gives them added importance when help is scarce and inexperienced.


• You have bought Bonds—bought generously, we know. But now the need is greater. Remember, it's your need. This time, buy
DOUBLE WHAT YOU DID BEFORE

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DRINKING CUPS AND FOOD CONTAINERS

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IMPROVED SALT MEDICATION

for **Heat Sickness**

Contains

Sodium Chloride	replaces salt lost in perspiration and excessive urination induced by drinking large quantities of liquids
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Vitamin C	Improves appetite; combats infection and bacteria toxins; lack of this vitamin causes weariness, headaches, restlessness, impaired digestion.

Cevasal is sold in bottles of 100, 1000, or 25,000 tablets. Attractive single tablet dispensers are available; fixed to walls or posts near the water founts, these dispensers encourage and facilitate use of the tablets by the employes. Prices on request.

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aspects, but also as an economically sound activity of mutual benefit to employer and employee. Industrial health and industrial medicine practices have been adopted by larger industries for the same reason, and it is a proved fact that such programs are not alone a good employee relations activity, but likewise an economically sound program of mutual benefit to employer and employee. A recent survey of 2,064 plants employing 1,945,551 workers showed that plants maintaining a good medical service showed a reduction of: 62% in occupational disease; 44% in accidents; 29% in absenteeism; 28% in compensation; 27% in labor turnover. . . . Our great problem is to expand the scope of industrial health work, to bring it into the smaller industrial plants of the nation where more than 50% of industrial workers are employed. Less than 50% are in plants using more than 500 employees, and there are about 170,000 industrial establishments employing less than 250 workers in America today. It is in this group of smaller plants that we need to make the greatest improvement in industrial health and industrial medical programs. These have often employed 'finger wrapping' rather than preventive medicine, part time or 'on call' service of an overworked general practitioner rather than the competent service of a trained industrial physician. I can assure you that industrial medicine is a full time job, and that small plants are concerning themselves with the problem of how to procure the services of a full-time doctor. Various plans have been suggested; a few have been tried. However, it is my opinion that we still lack enough experience to be dogmatic about any of them. The plans tried include dividing the full time of a physician among a number of small plants and on a regular schedule; making use of the services offered by insurance companies and by private clinics; using state and county medical society plans; and using a central office where a full-time medical staff is maintained by a number of small plants which call upon it for service.

Whatever the plan for the small plant, these first essentials of any good industrial health plan should be incorporated: (1) physical examinations; (2) first-aid facilities and instruction; (3) plant inspection for adequate light, adequate heat, adequate ventilation, adequate sanitation; (4) nursing service; (5) adequate case records."

California Physicians' Service

THE medical profession of California has taken on a difficult and complicated task. We are in a period of marked social changes, particularly in the relationship of the practice of medicine to human society. With the help of the California Medical Association, the California Physicians' Service has been organized as a non-profit corporation to provide medical care for persons of limited means, and to provide this care on a state-wide basis in which a large majority of the practising profession is concerned. This is far from a simple task, since medicine has become of such vital importance, and the organizations functioning in this field are so numerous and, to a large extent, unstandardized. We must work with hospitals, clinics, nurses, laboratories, and all of the appurtenances of modern medical practice. We have had to work out a pre-payment plan that was financially sound and reasonable in cost. The doctors who are members

Gratifying Relief

of distressing symptoms in CYSTITIS PYELONEPHRITIS PROSTATITIS URETHRITIS

The prompt symptomatic relief provided by Pyridium is extremely gratifying to the patient suffering with distressing urinary symptoms such as painful, urgent, and frequent urination, tenesmus, and irritation of the urogenital mucosa.

Clinical experience extending over more than a decade, as reported in the published literature on Pyridium, testifies to its prompt and effective action, and its freedom from narcotic or irritant effects.

Pyridium is convenient to administer, and may be used safely throughout the course of cystitis, pyelonephritis, prostatitis, and urethritis. *The average oral dose is 2 tablets t.i.d.*

More than a decade of service in urogenital infections

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Relieve PAINFUL, PRURITIC SKIN AFFECTIONS

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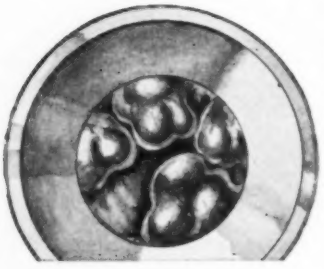

HEMORRHOIDS *with*

NUZINE OINTMENT

The many dermatologic conditions confronting the industrial physician at the present time comprise a real problem—associated as they are with decreased efficiency and loss of time.

The soothing, cooling, analgesic and decongestive action of the widely prescribed hemorrhoidal ointment—NUZINE—relieves the pain, burning, itching, thus preventing scratching and consequent spread of the infection.

In relieving the discomfort and irritation, Nuzine permits the rest and sleep necessary to continued efficiency.

Nuzine is supplied in 1-oz. tubes with special applicator and an easily removed label.

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of the California Physicians' Service have to be compensated by unit values which vary with the numbers involved and with the amount and type of illness. We can now look back on a comparatively steady growth. We have had the vicissitudes of youth but have survived them. We now handle well over a million dollars per year. Every detail of the actions of the Board of Trustees and of the administrative officers of the Service is available to you and to the public. We consider the California Physicians' Service to be one of the most promising of the experiments in sickness insurance that has, as its base, control by the medical profession."—From the Foreword by DR. RAY LYMAN WILBUR . . . . "*Beneficiary Members:* To be eligible for beneficiary membership, an applicant must have an average annual net income not in excess of $3,000, and must be an employed person enrolled as a part of a group of employees of a common employer, consisting of not less than five such employees. At the present time, there are approximately 90,000 persons covered under all types of contracts in force, this total number inclusive of beneficiary members and their dependents. Beneficiary membership has been divided into several divisions, as follows: Divisions S-1 and S-2 apply to the surgical service only memberships, under which there are approximately 33,000 persons covered. Divisions D-1 and D-2 apply to the surgical *and* two-visit deductible medical service memberships, under which there are approximately 31,500 persons covered. Division R applies to the Rural Health Service agreement, which includes medical, surgical and hospital care, under which there are approximately 3,500 persons covered. In addition to the divisions of beneficiary membership above, the residents of certain War Housing Projects in the state also receive the benefits of C.P.S. agreements with the Housing Authorities, but are not classed as beneficiary members in the same sense. There are approximately 22,000 persons covered under these agreements with the Housing Authorities. . . . *Surgical Service Contract:* This is an agreement covering the employed beneficiary member and his family dependents, and provides surgical services of professional members of C.P.S. The term 'surgical services' includes all cutting procedures and also the care of fractures and dislocations. It does not include obstetrical care or treatment of any condition arising from pregnancy, except that surgery for ectopic pregnancies and Caesarian sections is included. Pre-existing conditions are covered, and there are no waiting periods. The membership dues are: $0.60 per month for a male employee; $0.90 per month for a female employee; $1.50 per month for employee and one dependent; $2.25 per month for employee and two dependents. These contracts are issued to persons whose income is not more than $3,000 per year, and the professional member's responsibility is to render the included service and look to C.P.S. for his total fee for such services. . . ."

—From "Fifth Annual Report of California Physicians' Service," February 1, 1944.

Disabled Veterans

A SIX-PAGE pamphlet outlines the attitude of the Association of Casualty & Surety executives and corrects possible erroneous impressions. The company members of the Association do not advise employers against the employment of disabled persons. The initial workmen's compensation rate is governed by the industrial classification involved. Physical defects of workers are not considered in determination of the rate, and no higher rate is charged on account of employment of disabled persons. Although all possible facts and figures are not as yet available, the information at hand agrees with the statement of the U. S. Civil Service Commission that the work of the handicapped is at least as good as that of normal persons. The chief problem is the training of handicapped persons. The work of the Center for Safety Education of New York University is described. Finally the possible consequences of a disabling second injury are considered. The Association has prepared a suggested Model Second Injury Fund Law, which is the product of study of existing laws and of the experience of member companies.

—*Industrial Hygiene Digest, Literature & News*, Industrial Hygiene Foundation, Pittsburgh, April, 1944.

—*Continued on page 497.*

CAMP ANATOMICAL SUPPORTS for NEPHROPTOSIS

TOGETHER with treatment for any existing infection of the urinary tract, Camp Supports have proven valuable adjuncts in the relief of symptoms in many cases.

Camp-trained fitters have been instructed to consult the physician as to the position required for the fitting, if reclining or partial Trendelenburg. In the event that the physician desires the use of a pad, the fitter has been instructed to obtain information as to the type of pad to be used and to ask the doctor to mark on the garment or blue pencil upon the patient the exact location of the pad.

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Advantages of Camp Supports in Conditions of Nephroptosis:

1. The "lifting" power of Camp Supports is from below upward and backward.

2. Camp Supports are an aid in improving the faulty posture that sometimes accompanies renal mobility.

3. Camp Supports are easily and quickly adjusted.

4. Camp Supports stay down on the body by reason of the foundation laid about the pelvis.

5. Camp Supports are comfortable.

6. Camp Supports are economically priced.

Camp fitters ask patients to return to their physicians for approval of the fitting.

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World's Largest Manufacturers of Anatomical Supports

STATE HEALTH DEPARTMENT ACTIVITIES

New Jersey

THE STATE Board of Health, Trenton, New Jersey, recognizing that good health among workers is the life blood of New Jersey's expanding industries, has established a Bureau of Industrial Health. It will encompass and develop the activities of the former Industrial Hygiene Service. The new Bureau is immediately ready to give industry either directly or through other bureaus of the Department of Health, medical, nursing and engineering consultation in the whole field of worker health.

Who can use the Bureau of Industrial Health and how? Services of this Bureau may be had without charge by industry, labor, plant health and safety committees, labor-management committees, local health departments, other agencies, and all individuals concerned with problems of industrial health.

A worker health problem is approached from two points of view: WHAT is it? And—HOW can it be SOLVED? If the problem involves workroom conditions — atmospheric dusts, fumes or vapors, poor ventilation, inadequate lighting, excessive noise, harmful materials or operations, or the like—its seriousness can usually be measured by tests with instruments, either directly in the plant or by subsequent chemical analysis in the laboratory of the Bureau. These facilities are available on request.

A danger to health is often found lurking where none was suspected. But equally important — needless anxiety may exist in operations that actually are safe. This comes from misinformation, and it may hinder production as much as disease itself. Absenteeism, whether from true or imagined health hazards, can be lowered through honest study of *facts*, above-board discussion, and technical improvements in plant environment.

The solution may lie in better ventilation, plant sanitation, individual protection—through respirators, gloves, creams, or other means —or in a streamlined plant medical program. These are specialties which hitherto management of a given plant may never have had to explore. The plant engineer may never have had to design a dust exhaust hood; the plant nurse may never have been faced with *doing something* about dermatitis; the personnel director may never have been entangled in absenteeism reduction.

Through its Bureau of Industrial Health, and other divisions, the State Department of Health has physicians, nurses, engineers ready for consultation on these matters. Its personnel can *visit* the plant, *measure* the problem, *evaluate* it with management and labor officials, and recommend ways of solving it — based on the best current industrial practice.

Here are some problems handled:

Measurements of lead, silica, asbestos and other dusts in air; benzol, chlorinated hydrocarbons, mercury and other vapors; of carbon monoxide and other industrial poisons; determination of toxicity of raw materials.

Measurements of air flow in ventilating systems to see if it is sufficient, of humidity and temperature; layout of new hoods, ducts and fans; surveys of illumination.

Arrangement of plant dispensaries; programs for medical service, for home visitations, for utilizing community organizations.

Analysis of blood samples for syphilis control, and x-ray of workers for tuberculosis control—with follow-up of suspected cases.

Aid to plant physician and nurse in keeping records and using them, in developing health information projects, in stimulating preventive medicine.

Phone or write: Bureau of Industrial Health, State Department of Health, Trenton 2-2131—Extension 8282, J. LYNN MAHAFFEY, M.D., Director of Health.

West Virginia

THE Industrial Health Institutes were not held last year on account of lack of funds and other difficulties, but every effort is being made to resume the Institutes during 1944. Your committee is 100% for this program; however, it is our

Rx DESITIN OINTMENT
The External Cod-Liver Oil Therapy

USED EFFECTIVELY IN THE TREATMENT OF
Wounds, Burns, Ulcers, especially of the Leg, Intertrigo, Eczema, Tropical Ulcer, also in the Care of Infants

Desitin Ointment contains Cod-Liver Oil, Zinc Oxide, Petrolatum, Lanum and Talcum. The Cod-Liver Oil, subjected to a special treatment which produces *stabilization* of the Vitamins A and D and of the unsaturated fatty acids, forms the active constituent of the Desitin Preparations. The first among cod-liver oil products to possess unlimited keeping qualities, Desitin, in its various combinations, has rapidly gained prominence in all parts of the globe.

Desitin Ointment is absolutely non-irritant; it acts as an antiphlogistic, allays pain and itching; it stimulates granulation, favors epithelialisation and smooth cicatrisation. Under a Desitin dressing, necrotic tissue is quickly cast off; the dressing does not adhere to the wound and may therefore be changed without causing pain and without interfering with granulations already formed; it is not liquefied by the heat of the body nor in any way decomposed by wound secretions, urine, exudation or excrements.

DESITIN POWDER

Indications: Minor Burns, Exanthema, Dermatitis, Care of Infants, Care of the Feet, Massage and Sport purposes.

Desitin Powder is saturated with cod-liver oil and does not therefore deprive the skin of its natural fat as dusting powders commonly do. Desitin Powder contains Cod-Liver Oil, (with the maximum amounts of Vitamins and unsaturated fatty acids) Zinc Oxide and Talcum.

Professional literature and samples for Physicians' trial will be gladly sent upon request.

Sole Manufacturer and Distributor in U. S. A.
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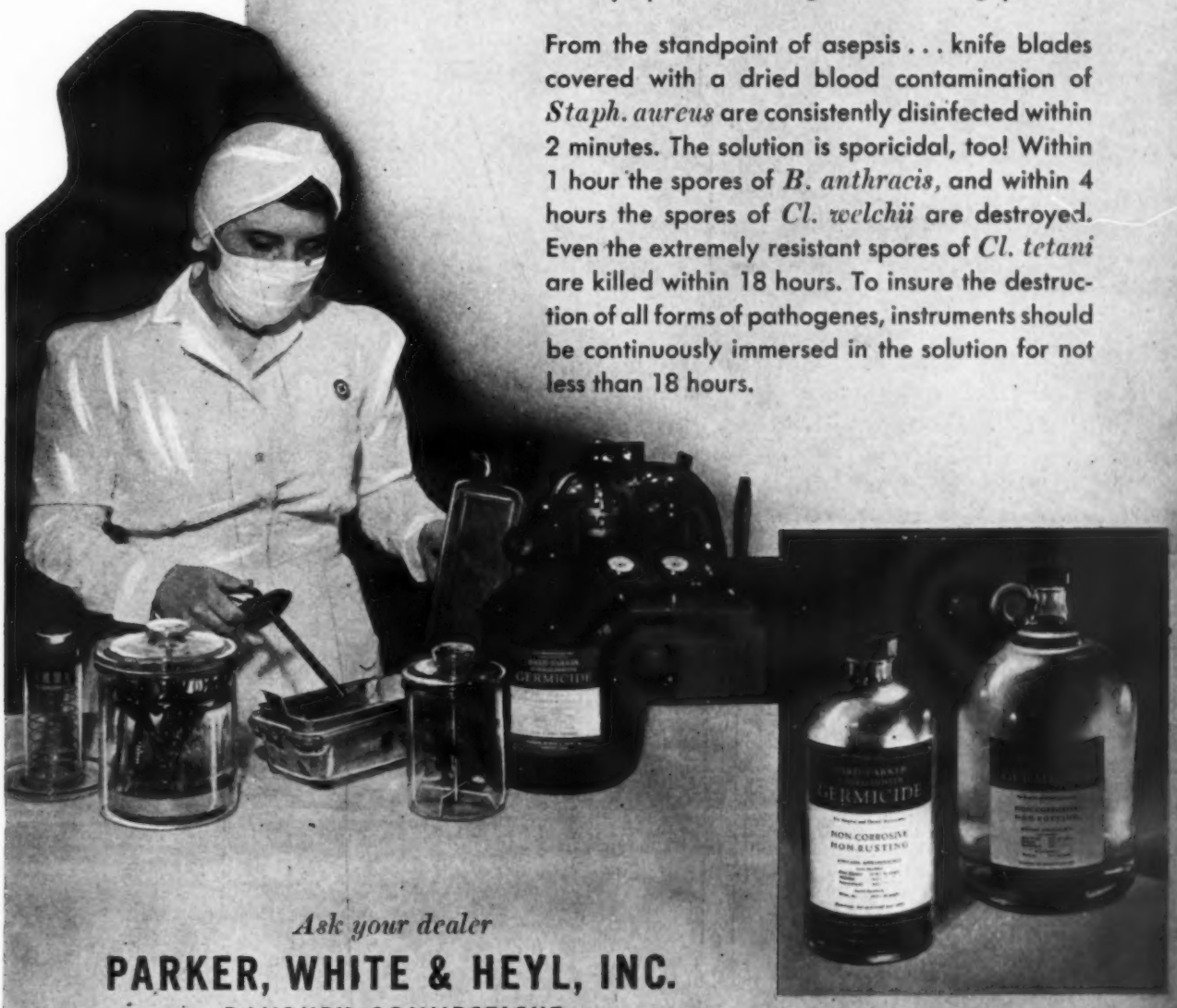
Protecting inherent qualities of instruments... secondary only to asepsis

Bard-Parker Formaldehyde Germicide

not only provides high germicidal potency—prolonged immersion of delicate steel instruments will not result in rust or corrosive damage. Obviously, the functional efficiency of any instrument depends upon such protection of its inherent factory qualities during the sterilizing process.

From the standpoint of asepsis . . . knife blades covered with a dried blood contamination of *Staph. aureus* are consistently disinfected within 2 minutes. The solution is sporicidal, too! Within 1 hour the spores of *B. anthracis*, and within 4 hours the spores of *Cl. welchii* are destroyed. Even the extremely resistant spores of *Cl. tetani* are killed within 18 hours. To insure the destruction of all forms of pathogenes, instruments should be continuously immersed in the solution for not less than 18 hours.



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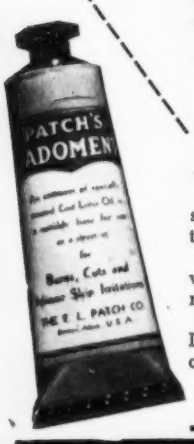
A BARD-PARKER PRODUCT

Permits Earlier Return to Work

*Aldrich, reviewing his experiences over 8 years, using Gadoment in indolent burns, minor burns, surgical lesions, varicose and decubitus ulcers, abrasions, anorectal wounds, noted that this cod liver oil treatment permitted patients to get back to work earlier than when the usual forms of treatment were employed.

He found Gadoment promoted good healing with a minimum of contracture.



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The Original American Cod Liver Oil Ointment

stimulates granulation and epithelization of tissues.

For the first-aid kit: GADOLETS—small, convenient gelatin applicators containing Gadoment.

For ready reference the new booklet INDUSTRIAL SKIN HAZARDS. Write for YOUR copy now.

*Aldrich, R. H., Indus. Med. *11*:4 (1942)

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BOSTON, MASS.

SULFAREA: SKIN INFECTIONS
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SCLOREA: WOUNDS BURNS
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BOTH PRODUCTS CONTAIN
SULFANILAMIDE
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IN Sulfarea and Sclorea the clinician obtains two highly efficient methods of applying the sulfonamides.

Sulfarea, the ointment, is a ready-prepared surgical dressing for superficial lesions, infected burns, certain pyogenic skin infections, traumatic wounds, leg ulcers and the like.

Sclorea, the emulsoid, has the same indications with the exception of cutaneous infections, in which Sulfarea is more practical. However, as Sclorea also contains cod liver oil it may obtain quicker healing of burns, denudations and abrasions. Write for professional brochure, Dept. 4.

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belief that the program should be sponsored by component medical societies. We are requesting the president of each society to appoint a committee of three members on industrial health. Their duties would be to make a survey and report the industrial health problems peculiar to their community. With the aid of the Bureau of Industrial Hygiene, and the State Medical Association's Committee on Industrial Health, they will be requested to sponsor a program that would be beneficial in solving these problems.

The Committee recommends that the following objectives of industrial medicine be recognized:

1. The industrial physician should make it clearly understood to the employee and the employer that a physical examination to determine the mental and physical fitness of all workers is a practical method of job placement, and is invaluable to the worker in the promotion of his physical welfare and in the reduction of lost working time due to injury and illness.

2. Education of the workers in personal hygiene and accident prevention.

3. Use of facilities available through the State Health Department and the Bureau of Industrial Hygiene in furthering the program on industrial health.

An outline of the facilities available through the State Health Department and the Bureau of Industrial Hygiene is shown in the following statement which your committee has received from DR. J. E. OFFNER, State Health Commissioner, and DR. C. SCOTT MCKINLEY, Director of the Bureau:

"The State Health Department is definitely interested in industrial health. It feels that this is one phase of public and preventive medicine from which tremendous good can arise. Many of the problems encountered in industry are the same as found in community life. The services of the State Health Department are freely available to the industries for these problems the same as they are to the general population.

"Thus the Division of Communicable Diseases will be only too glad to render assistance whenever necessary. Likewise the Bureau of Venereal Diseases and the Bureau of Tuberculosis will be glad to aid in control of these specific communicable diseases.

"The Sanitary Engineering Division can help industries maintain adequate water supplies and sewage disposal systems, as well as control health hazards in cafeterias, etc.

"The Hygienic Laboratory will perform studies on isolated communicable disease cases as it does for private physicians and will also undertake surveys when feasible and after an agreement with management has been reached.

"The Public Health Nursing Service is also available to the worker and his family for general health supervision.

"The Bureau of Industrial Hygiene has been specifically set up to aid both labor and industry. Industrial hygiene, very simply defined, is the preservation and improvement of the health of the workers. This bureau has been so organized that it can aid industry and physicians with their medical programs, aid industrial nurses, and evaluate various environmental hazards such as dust, fumes, ventilation, sanitary facilities, etc.

"Inasmuch as the responsibility for handling health problems occurring in industry has been delegated to this one Bureau, such problems should be brought to the attention of the Bureau, which can in turn call upon other branches of the State Health Department for aid in reaching a solution."

Your committee proposes that the following principles in the practice of industrial medicine be endorsed by the State Medical Association:

A. That pre-employment and periodic physical examinations be made *only* by qualified medical examiners.

B. That the pre-employment examination include a Wassermann

a complete unit for approved contraceptive technique

provides for patient comparison of Jelly and Cream (no extra cost)

The Koromex Set Complete contains in a handsome case:

Koromex Diaphragm with special pouch

Koromex Trip Release Introducer (takes all size diaphragms)

Tube Koromex Jelly (higher lubricating factor)

Tube Koromex Cream (lower lubricating factor) formerly H R Emulsion Cream

Set Dickinson-Freret Fitting Charts

Price of Koromex Set Complete is only that of the Koromex Diaphragm and Koromex Trip Release Introducer. Attractively packaged with removable label. To prescribe, just write "Koromex Set Complete" and state size of diaphragm. **Write for literature.**

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from natural sources — primary yeast, corn and wheat, providing the Whole B Complex—reinforced with niacin amide.

It has been found that certain factors of the B Complex are obtainable only from Nature — they cannot be synthesized.

Nutritional investigations indicate that administering a complete combination of the B factors is necessary for optimum results.

BEZON is *Whole* Vitamin B Complex, concentrated to high potency from natural sources — reinforced with niacin amide.

BEZON is a *Whole* Vitamin B Complex containing one milligram of natural thiamine, two milligrams of natural riboflavin, and 10 mg. of synthetic niacin amide, together with all the remaining members of the B Complex from natural sources, concentrated in two tabules.

Supplied in bottles of 60 and 200 tabules.

Samples and literature available on request.

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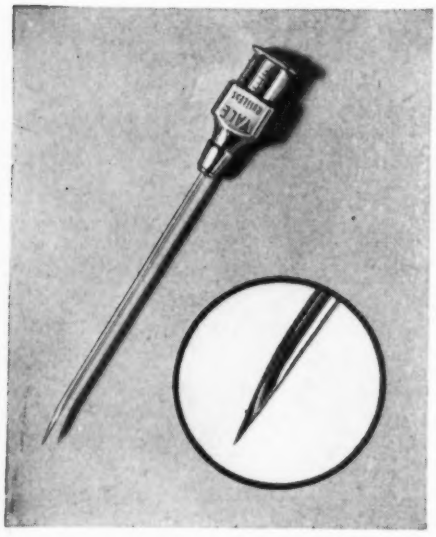
The HUBER POINT

A Major Advance in Hypodermic Needle Point Design

—available on YALE-LOK needles!



It has long been recognized that the ideal hypodermic needle point should:

1. Penetrate tissue easily with a minimum of pain.
2. Make a clean slit or cut on insertion — without gouging.
3. Minimize seepage when needle is withdrawn.

It is apparent, however, that with the bore opening at the end of the cannula, gouging, resultant pain and seepage can never be efficiently controlled.

Therefore, Huber Point Needles have the bore opening at the side where it is not in position to catch or punch out tissue plugs. The sharp point simply divides the tissue. The closed bevel enlarges the initial slit, which contracts when the needle is withdrawn.

Result: A minimum of trauma, pain and seepage.

Specify Yale-Lok Needles with or without the Huber Point. The price is the same. Your regular dealer can supply you.

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test and x-ray of lungs, when feasible, provided no publicity be given to reports.

C. That the practice of some employers of encouraging employees to return to work too soon after injury or illness, merely to produce a good attendance record, be discouraged.

D. That in smaller industrial plants, a physician should be employed who should spend at least one hour per week per 100 employees in the plant, and that a nurse be employed to spend twice as much time in such plants.

E. That steps be taken to encourage legislation whereby industrial diseases would be covered by the West Virginia State Compensation Fund. —Respectfully submitted,

E. F. GOTT, M.D., *Chairman;* E. N. PELL, M.D., W. F. ROGERS, M.D., MAX OATES, M.D., J. M. COFER, M.D., W. E. BREWER, M.D.

—*West Virginia Med. J.*, May, 1944.

Wisconsin

ON THE basis of numerous comments from industrialists and physicians, the Committee on Industrial Health feels that the regional industrial health clinics being sponsored by the State Society and the Industrial Hygiene Unit of the State Board of Health are a success. The first of the series of six opened at Kenosha on April 12, with approximately 200 industrial leaders and physicians in attendance. The afternoon session, consisting of scientific papers presented by DRS. CHESTER C. SCHNEIDERS, ELWOOD W. MASON, O. A. SANDER, ARTHUR A. SCHAEFER, JOSEPH M. KING, S. M. MARKSON and MILLARD TUFTS, was especially well received by the industrial personnel, who offered favorable comment on the content and presentation of the papers. Last-minute substitution of speakers for the evening dinner program was an unforeseen development, but one which did not defeat the purpose of the clinic. The third speaker, MR. FRANK GREENYA, director of outdoor relief for Milwaukee County and Past State Commander of the American Legion, spoke forcefully on "The Placement of Returning Veterans Into Industry." His appeal to provide work of real purpose and dignity for returning veterans suffering from physical handicaps offered a real challenge to all industrialists present to engage in some sound post-war planning in Wisconsin's industrial plants. At the time this article is being prepared to meet *Journal* deadlines, the other clinics have not been held. The Milwaukee team named above will also present the programs at Manitowoc on April 19 and Green Bay on May 2. Physicians who will participate in clinic programs at Oshkosh on April 25, Janesville on May 16 and Wausau on May 18 are DRS. H. L. GREENE, Madison; CHESTER KURTZ, Madison; VINCENT KOCH, Janesville; HELEN DICKEY, Madison; E. R. SCHMIDT, Madison; A. R. TORMEY, Madison; G. A. COOPER, Madison; and NORBERT ENZER, Milwaukee. MR. W. D. JAMES, president of the Wisconsin Manufacturers Association, who was scheduled to speak at four of the clinics, will be unable to appear at all of these because of illness. His place on the program at Oshkosh is being taken by MR. VERLE H. ERICKSON, safety director at the Snap-On Tools Corporation, Kenosha, speaking on the same subject, "The Need for a Good Health and Safety Program in Industry." This topic will also be discussed at the Green Bay clinic on May 2 by MR. LEO P. LUNENSCHLOSS, vice-president of the Scanlon-Morris Company, Madison. It is hoped that MR. JAMES will be able to appear on the Janesville and Wausau programs.

—*Wisconsin Med. J.*, May, 1944.

Doctor in Congress

BELOW we reproduce a letter from CONGRESSMAN MILLER. DR. MILLER is aware of the obstacles which his bill will face. The results will depend not only on the efforts of our own representative and whatever active backers he may be able to enlist among congressmen from this and other states, but as well on how much help these representatives will receive from their constituents at home. It is hoped that every reader of this *Journal* will welcome the opportunity of endorsing DR. MILLER'S proposal. The Children's Bureau is now in the Department of Labor. We cannot afford an optimistic belief that this autocratic agency will remain content with its existing powers. Governmental bureaus, as a general rule, thrive on unlimited desires for expansion. And the Children's Bureau follows this rule perfectly. From a modest beginning, with a thin booklet on infant care which had its circum-

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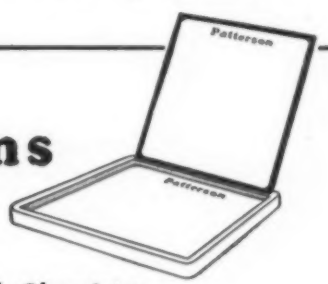

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scribed use among young mothers when pediatrics was struggling for recognition, the educational functions of this bureau were rapidly expanding. Then came a windfall; the Shepard-Towner Act of the late twenties. The depression with its Federal allotments served to bolster both the morale and the powers of the Children's Bureau. What the war has done is well exemplified by the arbitrary administration of the EMIC program. What will develop from here on remains to be seen. "April 17, 1944. Dear Doctor: I expect to introduce into the Congress a bill which would transfer all the health activities in the Labor Department to the United States Public Health Service. This bill would transfer the Maternal and Child Health, the Crippled Childrens' and other programs now developing, including the Industrial Health activities. It would leave in the Labor Department the Vocational Educational work and the section referring to delinquent children. I realize that this is matter which will cause considerable concern to the Labor Department. I have felt, however, that much good can be accomplished for the people of the country in promoting better health activities if all matters relating to health were placed under one tent with one department directing these activities. In transferring the health activities now in the Labor Department to the United States Public Health Service it would be possible to eliminate overlapping and often confusing plans as they now exist with two departments in the field of health. The money now being used under Title VI of the Social Security Act in the Department of Labor could easily be transferred, with its personnel, to the Public Health Service. I should be pleased to have your reactions to such a bill. I want to take a constructive and conservative road which will be of benefit to the public and health activities generally. Your counsel and advice will be appreciated. Very truly yours, A. L. MILLER, M.C., Fourth District, Nebraska."

—From *Nebraska State Med. J.*, May, 1944.

ON APRIL 25 CONGRESSMAN A. L. MILLER, of Nebraska, introduced in Congress a bill to transfer to the Federal Security Administration and the Public Health Service those functions of the Secretary of Labor and the Children's Bureau of the Department of Labor which are concerned with health, including industrial hygiene. DR. MILLER, in introducing his bill, spoke unequivocally and forthrightly regarding the necessity for this legislation. As a former state health director in Nebraska he had observed at first hand the activities of the Labor Department relating to health. Since the Children's Bureau was established on April 9, 1912, it has repeatedly expanded and extended its functions in all fields of health. The original act contemplated only investigation of child welfare and the control of such social problems as dangerous occupations, accidents and employment of children. At that time the Congress provided $25,640 for the work of this bureau. Today the Labor Department includes the Division of Maternal and Child Health, a Division of Crippled Children and a Division of Industrial Health, all of which have been expanding their activities. Much of their work is being duplicated in the U. S. Public Health Service. As pointed out by Congressman Miller, the definition has been adopted that a child is any one under 21 years of age. The extent to which the Labor Department enters directly into the activities of state health departments is so great that they actually audit the books of state health departments, check their money, pass on their health activities and in other ways control their functions, as incidentally, does the U. S. Public Health Service also to a considerable degree. The amount of money available for matching purposes through the Children's Bureau has constantly expanded. Now that the emergency maternal and infant care program has been set up, the original $25,000 has been expanded to millions and millions. CONGRESSMAN MILLER said: "It is my experience as state health director to find that these two agencies and the personnel in the health departments are jealous of each other. Each wants to expand his health activities. The confusion of plans and conflict of ideas made it difficult for state health directors to coordinate their programs to the best interests of the public. I am convinced that if all the health activities were

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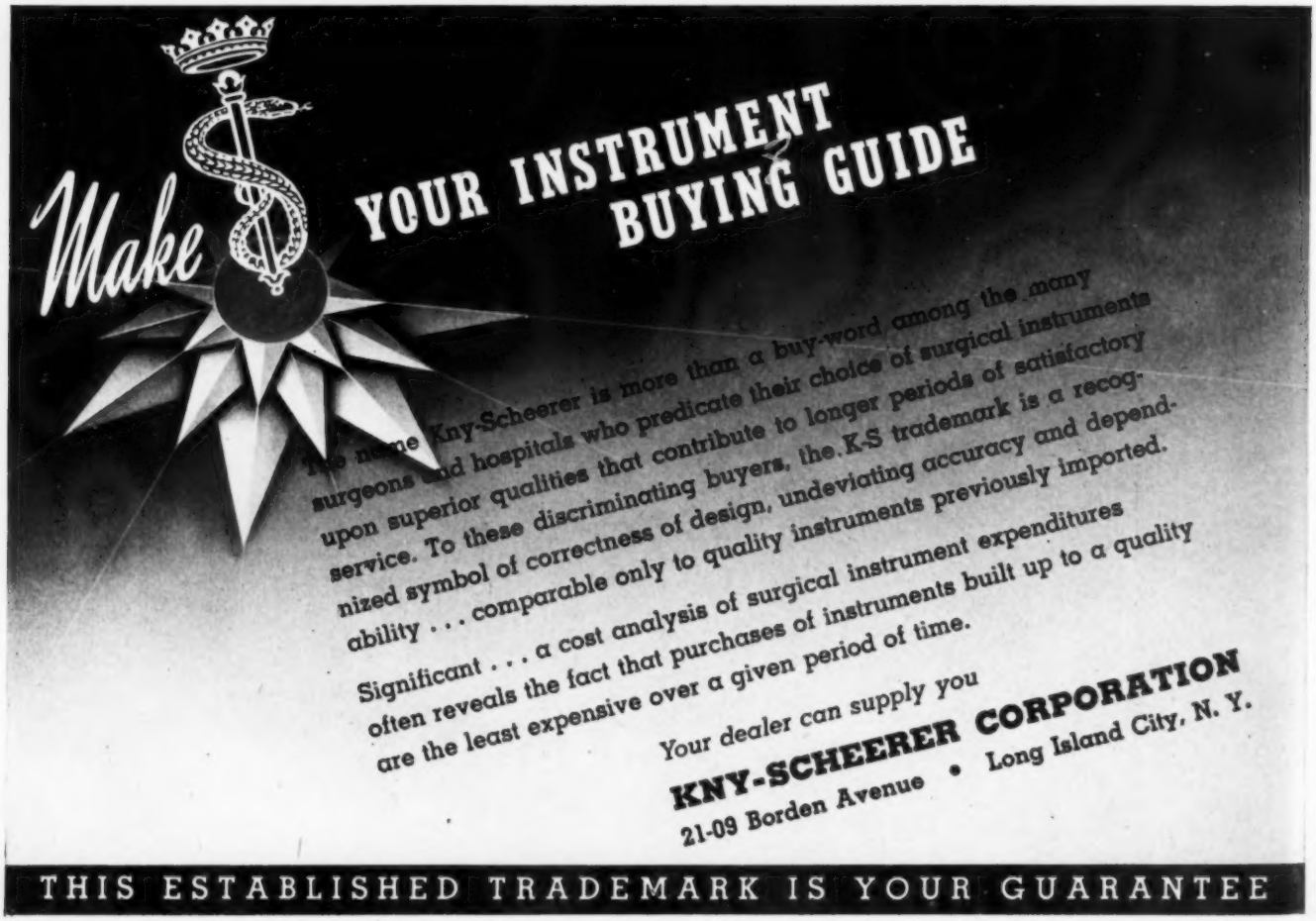
under one head with moneys and plans spent with one objective in view, that we could eliminate much duplication and confusion in the promotion of better public health." The House of Delegates of the American Medical Association has urged repeatedly the inclusion of all health activities of the federal government in a single agency. As physician, health officer and statesman CONGRESSMAN MILLER is true to his scientific training in launching this measure.

—From "Current Comment," in *J. A. M. A.*, May 13, 1944.

CURRENT ARTICLES of QUALITY

Union Attitudes

WILLIAM ARKWRIGHT DOPPLER, PH.D., Director, Industrial Relations, National Tuberculosis Association, "Tuberculosis: Labor and Management—A Guide to Industrial Relations," National Tuberculosis Association, 1790 Broadway, New York. Extract (Chapter VII): "Ten million people, 60,000 business agents of local unions, and another 2,000 officials of councils and national bodies will not be unanimous on any issue. Any project, however, that receives extensive union approval is usually assured success among organized workers. Such a large group also is bound to contain its share of crooks and crackpots. One can find doctors and bankers in Sing Sing, and fools are found in august scientific societies. Excluding the labor racketeers, the majority of labor leaders are level-headed, honest and sincere. Organized labor is sometimes suspicious of industrial health practices controlled by management. Labor feels that pre-employment and replacement examinations and periodic examinations tend to separate a man from his opportunity to work, unless conducted by labor's own representatives. Whether such an attitude is sound is debatable but, viewed in the lights of the past when industrial health services were rendered by the 'company doctor,' a name which often carried a sinister connotation in the worker's mind, this attitude is understandable. It must be remembered that many labor leaders were once rank-and-file workers in the dark ages of industrial medicine. The status of the industrial physician has largely changed. Today he is usually a highly trained person who has the respect of the medical profession and who enjoys the confidence of the workers he serves. Yet the sins of his fathers still haunt him. Trust and confidence are gaining ground against the odds of real or imagined grievances. Many worthwhile industrial health projects, including screening of workers for tuberculosis, at first met with violent opposition from labor unions and from management. Misunderstanding of motive was usually the reason. After leaders and members of a union are properly informed, assured that findings cannot be used to jeopardize the interests of the workers, and after suitable safeguards are agreed upon, the original stand is usually reversed and unions become ardent and enthusiastic supporters of the program. Unions have often taken the initiative in case-finding programs as shown by the x-ray surveys in local unions affiliated with the International Ladies' Garment Workers (AFL), the Amalgamated Clothing Workers (CIO), and others. Tuberculosis associations and the public must realize that any industrial x-ray program which leaves labor out of the picture cannot succeed. Labor's attitude as a whole is not unreasonable. Workers resent what they do not understand. They do not want to be merely the recipients of services from industry. They expect to be full-fledged partners in a program. In practice this means labor participation in planning the program, labor members on steering committees and a great deal of health education among workers. These are, after all, reasonable requests. It is the working man who has tuberculosis. He may have to spend months or years in curing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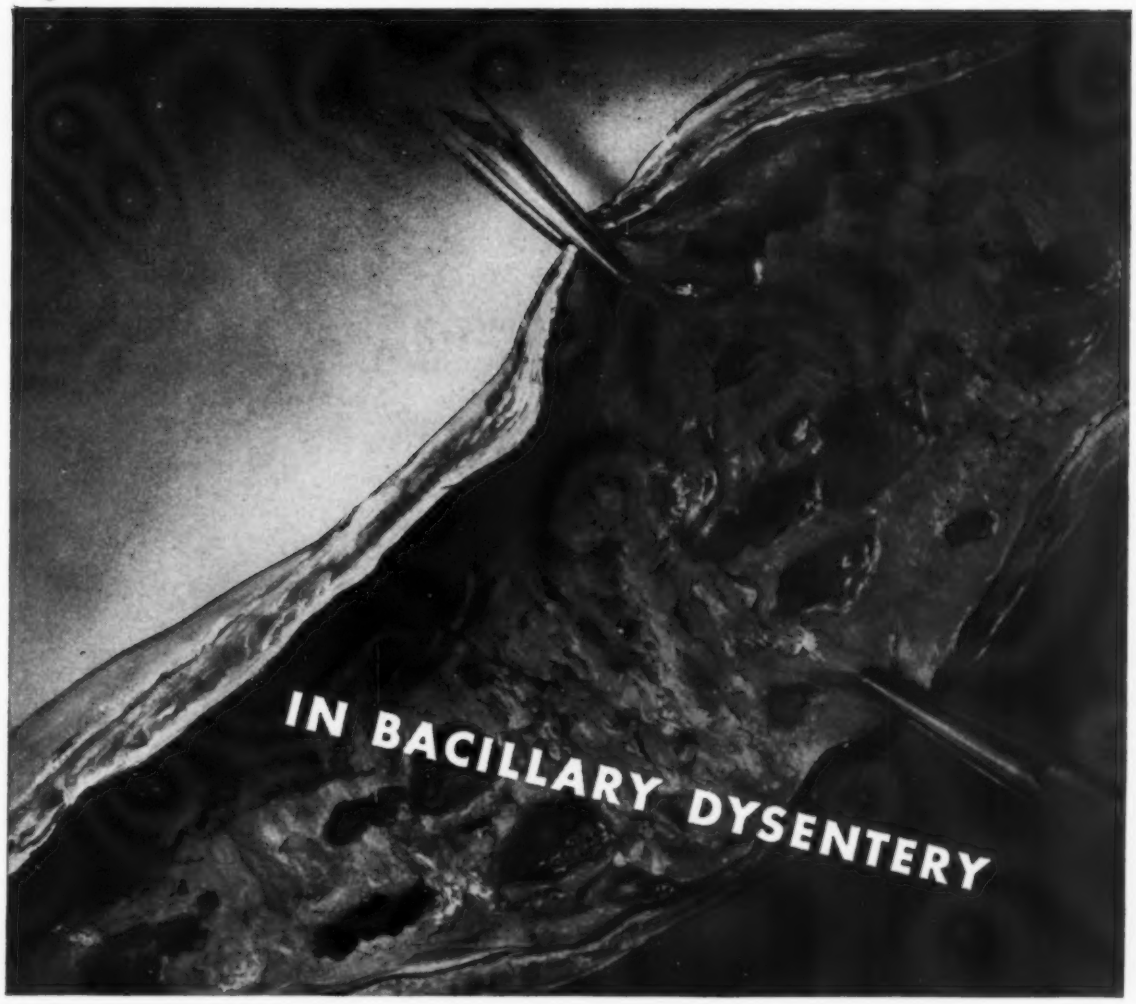

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1 J. Lab. & Clin. Med., 28:162, 1942. 2. J. A. M. A., 119:615, 1942.

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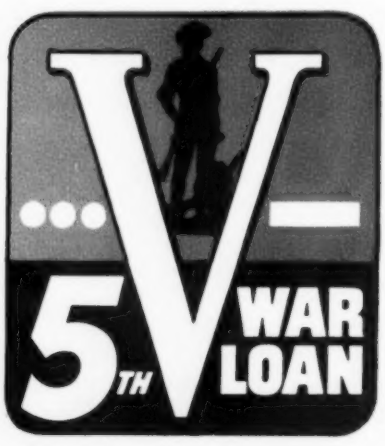
and his family will have to face the hardships arising from his temporary loss of earning power. He should, therefore, have a voice in formulating a program which will profoundly affect his individual life. WHAT TO DO: (1) Find out 'who's who' in local labor circles. (2) Ask union officials for names of persons who could be organized into an industrial health speakers' bureau. (3) Cooperate with health committees of the unions. (4) Organize with union guidance a workers' health education program." (Review later.)

Adventures in Industrial Medicine

DR. CAREY P. MCCORD, Director, Industrial Health Conservancy Laboratories, Detroit, "Conservation of Industrial Manpower," address at a 1944 Series of Industrial Health Conferences, sponsored by the Ohio State Medical Association and the Ohio Department of Health, published in *Ohio State Med. J.*, May, 1944 (40:5, 413-418). Extract: "To the minds of many persons including some physicians, the work of the plant physician is limited to the tedious performance of endless physical examinations and the drab care of injuries, chiefly minor ones, that occur among workers and the making out of reports therefor. To the contrary there is almost infinite variety of situations that make up the daily adventures of the plant hospital. At some risk of elaborating the obvious it still may be of advantage to list almost at random a sample of current or perennial items confronting the industrial physician, such as: Is it desirable to carry out pre-placement patch tests on new workers exposed to chemicals and other antigens? Are women workers more susceptible to occupational disease than men? Why are absentee rates for women almost double those of men? What medical problems are arising in connection with the reentry of discharged military personnel into industry? In view of the distressing increase of allergic manifestations from sulfa drugs should these be abandoned in industry?



What limitation should be placed upon the use of services of the pregnant woman in industry? What action should be taken in connection with the accident-prone individual? In view of the debased quality of many scores of solvents used in industry what additional steps may be taken to combat occupational skin disease? How may industrial noise be best combatted? To what extent has the six-day week contributed to the incidence of occupational diseases? In the present genuine shortage of physicians, how far should nurses be permitted to go in the making of physical examinations? Is work on night shifts more detrimental to worker's health than the same duties performed on day shifts? . . . . It is conceded that a fair amount of the industrial medical work that is carried out is routine—the care of many small injuries, many physical examinations, many minor complaints, many records. Off-setting this little-exciting work is the occasional adventure, the sudden emergency. In the absence of a plant medical department these special problems more often are placed in the lap of public industrial hygiene services, such as that headed up by DR. LEGGO, but at times insurance companies accept responsibility for proper investigation. A recital of a dozen of these happenings would perhaps be more interesting than much of the material here presented

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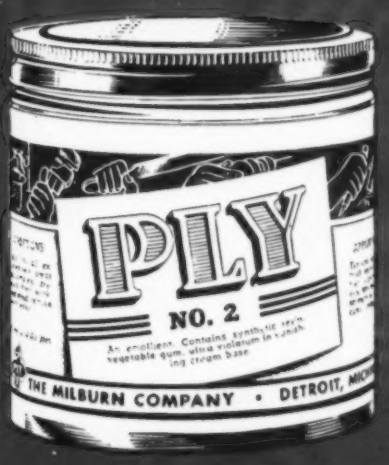

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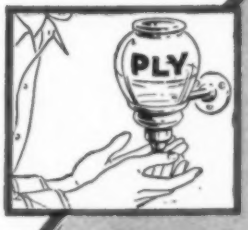

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but there is time here only for one. In a certain plant known to everyone here through much war-time publicity, on a certain Tuesday morning about 30 workers developed an identical skin condition. There were the usual complaints, condemnations, incriminations. The medical department took over. At once it was established that these cases of dermatitis came from no single department, appeared on workers employing highly different chemicals or no chemicals at all, manipulating dissimilar parts, eating in different dining rooms, and apparently in no-wise having any common exposure. By the time these facts were assembled, the number of cases reached 40 and the group was a little panicky. It was evident that the condition was no ordinary skin disease, such as scabies, and conversely that it must be a contact affair. At about this time a common denominator was found. All of these men wore coveralls and all had been furnished clean coveralls on Monday preceding the Tuesday of the outbreak. Here was a clue. This clue further revealed that the points of severest attack were about the heavier seams of the garments and at those points where coveralls were most likely to be in contact with bare skin rather than street garments and underwear. It was then established that all of these workers were wearing garments from a particular industrial laundry. After that the epidemiology became simple. It was determined that this particular laundry was using a crude turpentine as a dry cleaning agent, turpentine being a good oil extractor. Customarily this oil was removed from garments by seven washings with alkali solution and later plain water, but, at the particular time of washing these garments, only 50% of the laundry's work force showed up for duties with the result that these garments were rushed through with only three or four hit-or-miss rinses. The consequences became only too painfully apparent. This type of problem through endless variation arises in larger establishments and frequently in smaller ones. Far from being drab routine of finger dressing, industrial medicine offers more in small adventures than almost any other field of medicine."

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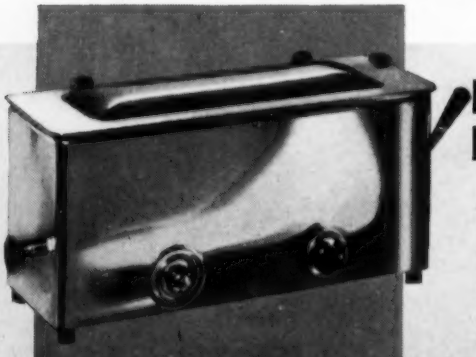

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Treat the Whole Human Being

DR. FRANK F. TALLMAN, Director of Mental Hygiene, Michigan State Hospital, "Absenteeism and the Doctor," address at a 1944 Series of Industrial Health Conferences, sponsored by the Ohio State Medical Association and the Ohio Department of Health, published in *Ohio State Med. J.*, May, 1944 (40:5, 419-424). Extract: "Physicians in private practice quite properly have a somewhat different approach to the problem of absenteeism. To them the employee is primarily a patient and attention is upon the disease syndrome presented. It may not occur to them that they are dealing with an absentee from an important war industry and that the course and perhaps the cause of the illness has a direct relationship with the employment environment due to emotional stresses that are present. There are supervisors whose attitudes are perfectly capable of causing gastric ulcers. There are others who might well be held responsible for an attack of mucous colitis or spastic constipation. Too much emotional strain may hasten the failure of a decompensating heart or bring confusion to the arteriosclerotic. There is no doubt that those who are absent from work because of real or fancied ill health are as much the problem of the physician in private practice as they are of the physician within the plant. Both should work closely together and both can favorably influence the trend of absenteeism by utilizing the psychosomatic point of view. This means that the patient's emotional environment and personality make-up have to be taken into consideration when one considers the etiology, symptomatology, and treatment of the human ills. This approach will bring about earlier rehabilitation and consequently quicker return to the job.

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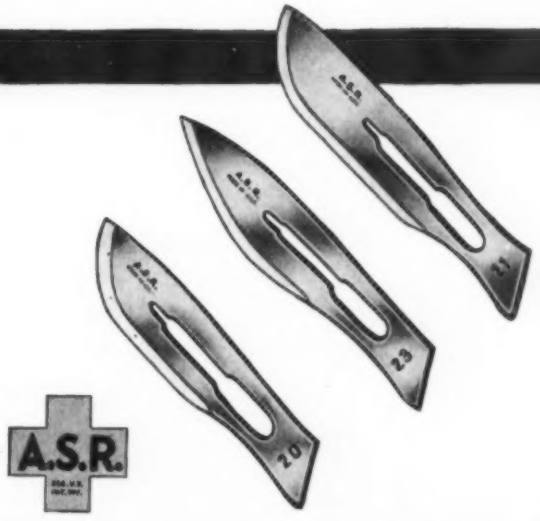

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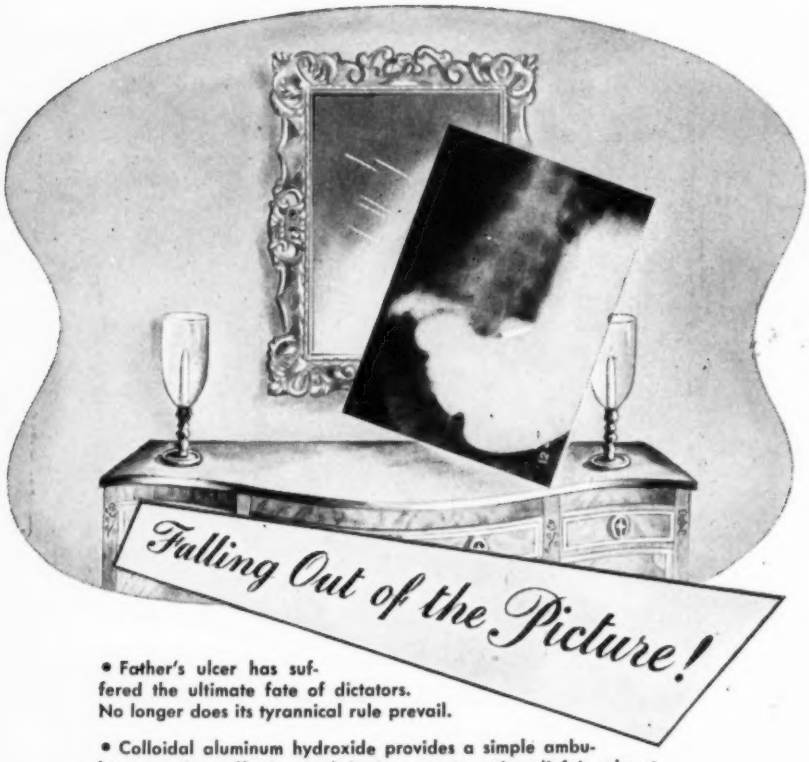

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. . . Since the community physician's responsibility with respect to the problem of absenteeism is centered in his office practice, it is evident that the more successful he is in treating the whole human being, the quicker his patients will get back to work. A shorter way of saying this is to insist that the psychosomatic and mental point of view will result in more successful treatment and consequent rehabilitation. The physician-patient relationship is, when all is said and done, the essence of the practice of medicine. The physician must ever keep uppermost in mind the tremendous influence and authority that his position gives to him. He must always remember that he is a lay confessor and that he only partly treats a patient unless he takes into consideration the emotional problem present and the difficulties of the inter-personal relationship with which the patient is struggling. There is nothing new about psychosomatic medicine. Doctors have always, to some degree, recognized the influence of emotions in bringing about physical disease or in modifying its course. Unfortunately this recognition has too frequently been too little and too late. I am satisfied that physicians must guard against becoming mere technicians. They should specialize in becoming comfortable, understanding people again, and perhaps even discard a little of their red leather and chrome. I sometimes wonder if the demand for all sorts of health schemes is not in some part due to the failure of us doctors to practice the patient-doctor relationship that we talk so much about. I wonder if most of us do not need to rediscover the human being. In conclusion here are a few impudent but practical points: (1) Center interest on the patient first and his symptomology next. Do not *take* a history, let the patient *give* it. (2) Avoid the habit of thinking phrases such as 'I'll bet the woman in the waiting room is a gall-bladder.' (3) At the first contact allow the patient to tell how he feels about his boss, his work, and his family. (4) Do not do all the talking. If you are quiet and attentive, you will learn more about the subject and his disease than if you consume your own precious time by delivering a monologue in the form of questions which, incidentally, are often so put that they suggest their own answer. (5) A good psychiatric approach demands: (a) A reassuring, uncritical attitude; and (b) an understanding that the patient is likely to be both fearful and hostile. (6) Remember that the patient does not 'think' about his physician but he 'feels' toward him. Doctors are in effect emotional substitutes for husbands, wives, fathers, and in fact, all those who have exercised authority over the patient. As a substitute, the physician must be prepared to accept and deal with hostility, rejection, criticism, and very often overaffection. (7) Read journals and books dealing with psychosomatic medicine. They will stimulate your intellectual curiosity and occasionally, but only occasionally, stretch your credulity. (8) Read psychiatry and mental hygiene and keep in mind its application to your own activity or specialty. (9) Do not say, 'I do all this,' when you mean 'I can't be bothered.' Be mentally healthy, face reality."

Occupational Disease Problems

DR. RUTHERFORD T. JOHNSTONE, Director, Department of Occupational Diseases, Golden State Hospital, Los Angeles, "Occupational Disease Problems and How to Meet Them," address at a 1944 Series of Industrial Health Conferences, sponsored by the Ohio State Medical Association and The Ohio Department of Health, published in *Ohio State Med. J.*, May, 1944 (40:5, 425-433). Extract: "One facet of medicine, the surface of which Ramazzini first scratched in about 1700 and which has been polished brighter and clearer in the past several decades in this country by a few persevering pioneers, not the least of them being that noble Irishman of our afternoon program, DR. MCCORD, is Industrial Medicine. Struggling through the years with slow and dubious recognition, it took the 'brazen throat of war' to proclaim its importance. Industrial management has now tasted of industrial medicine and found it to be good—good economics. Management has encouraged, and after the war will insist upon, a program the scope of which will startle the uninformed. In addition to the best medical and surgical care, the program includes

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1. Ann. of Surg. 118:776 (Nov.) 1943. 2. J. A. M. A. 122:909 (July 31) 1943. *Triple dye treatment, with petrolatum gauze.

nutrition, nursing, dental hygiene, elimination of veneral disease, and the early detection of cancer and tuberculosis. Also of great significance is the adoption by industry of an extensive rehabilitation, or so-called placement program, for the war-wounded and the civilian-handicapped individual. Socio-economic forces are insisting that our profession assume its obligation in caring for the handicapped. No longer will it be sufficient for a physician to prescribe a sedative for the epileptic, idleness for the cardiac, or a prosthesis for the cripple. Industry and you too, doctor, must learn to match job requirements with skill characteristics; to match physical demands with individual capacities. All this, briefly sketched, is the future program of Industrial Medicine. . . . Finally, I wish to point out that a certain portion of our profession constitute a bottleneck to the solution of the occupational disease problem because of their attitude. These uptown specialists look with disdain upon industrial medicine, yet when the occasion arises commit themselves to an opinion that is neither of knowledge within their own experience or to be credited by the experience of others. Such—shall we forgivingly call it—thoughtlessness contributes two false bits of fabric to the occupational disease pattern. First, it confuses the medicolegal issue; and secondly, it adds erroneous aspects to a clinical entity. For instance, a claimant who had been exposed to negligible amounts of carbon tetrachloride developed a coronary thrombosis. A cardiologist testified that he thought this exposure could have induced the cardiac pathology. When questioned for an authority he stated that he recalled seeing in the *J.A.M.A.* an article that mentioned carbon tetrachloride and heart disease. Bear with me a moment while this most careless assumption is analyzed. He had seen an article in the September, 1943, issue of the *J.A.M.A.* which discussed the therapeutic effects of certain gases and solvents and considered the possibility of excessive amounts producing death due to ventricular fibrillation. Mind you, he permitted a faulty memory to confuse a dysrhythmia with coronary thrombosis. If this internist, or a myriad like him in similar instances, can propose that a chronic exposure to a minute amount or even to excessive amounts of the solvents, which were not present in this case, can produce coronary heart disease, then a new clinical entity in industrial medicine is being established without the consent of those authorities who know otherwise. If such a disease can be accepted as resulting from an exposure to carbon tetrachloride without any proof of fact, then there is no reason why one might not contend that diabetes or arthritis or other communal disease can result from the same substance. Or, to further confound the medical profession, if one can conclude that the inhalation of such a substance can cause coronary sclerosis, then the now accepted pathology of this disease might as well be discarded. Physicians in or out of an industrial practice, especially those out of this practice, who toy with the occasional case only, must remember that in industrial medicine, just as in general medicine, known recognized clinical entities are developed through a process of repeated observations, clinical investigations, and labora-

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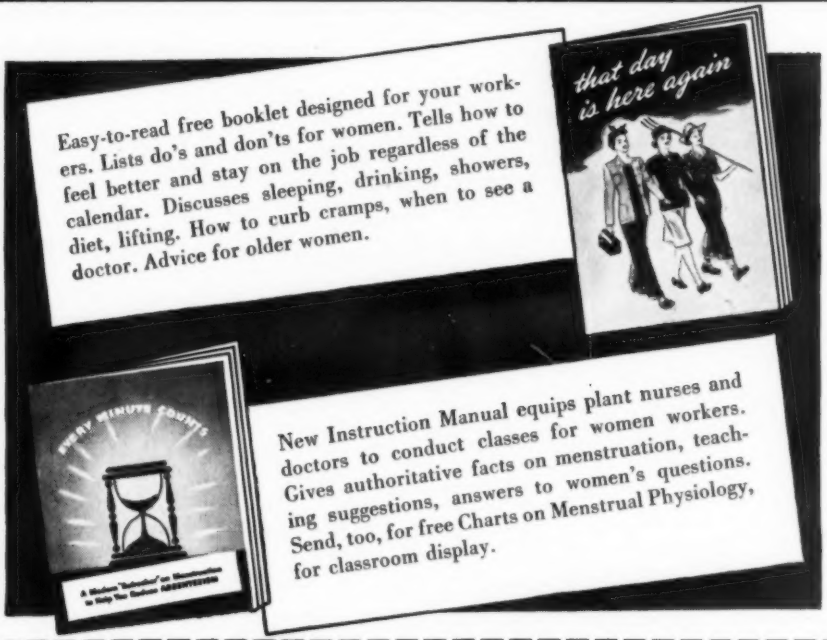
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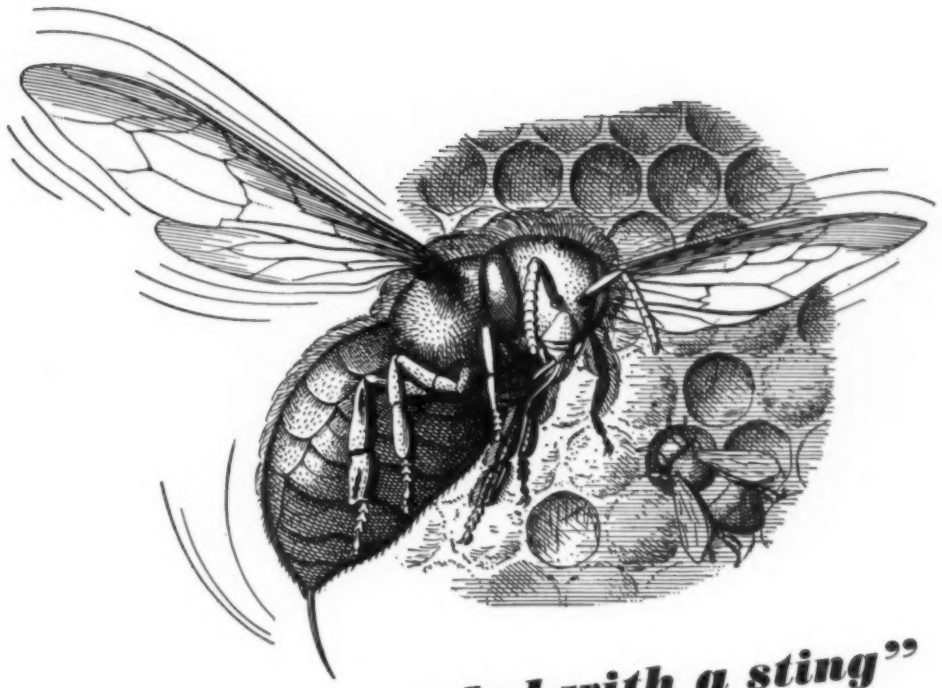

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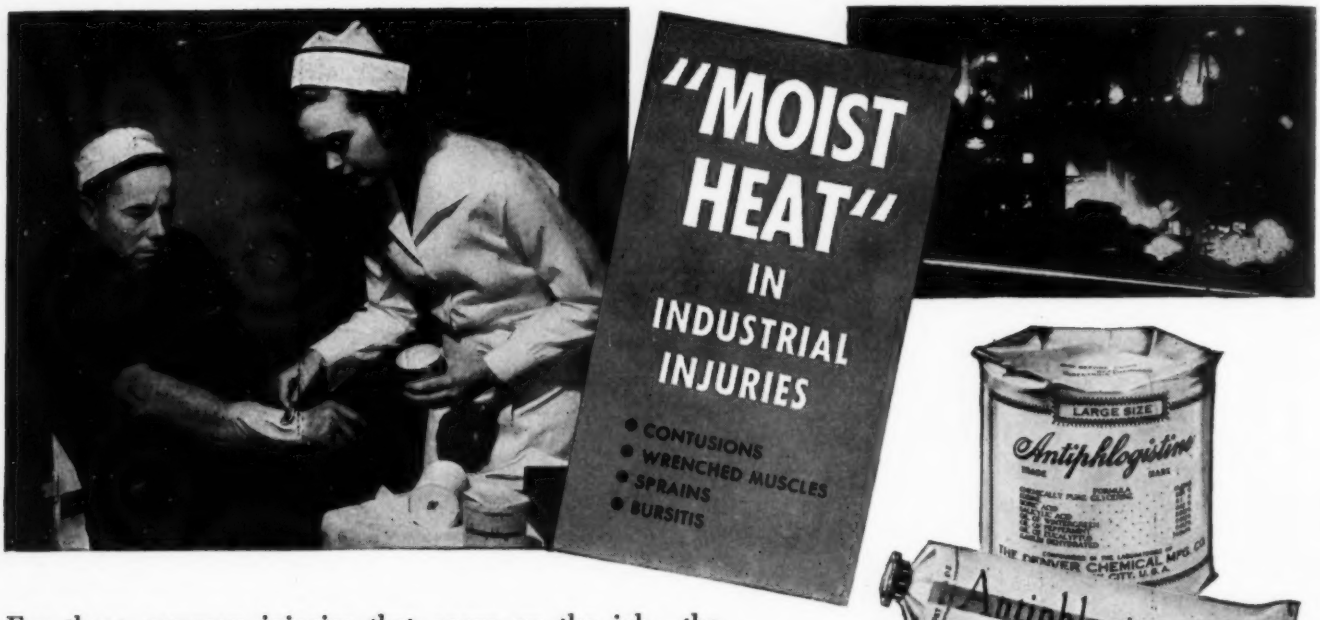

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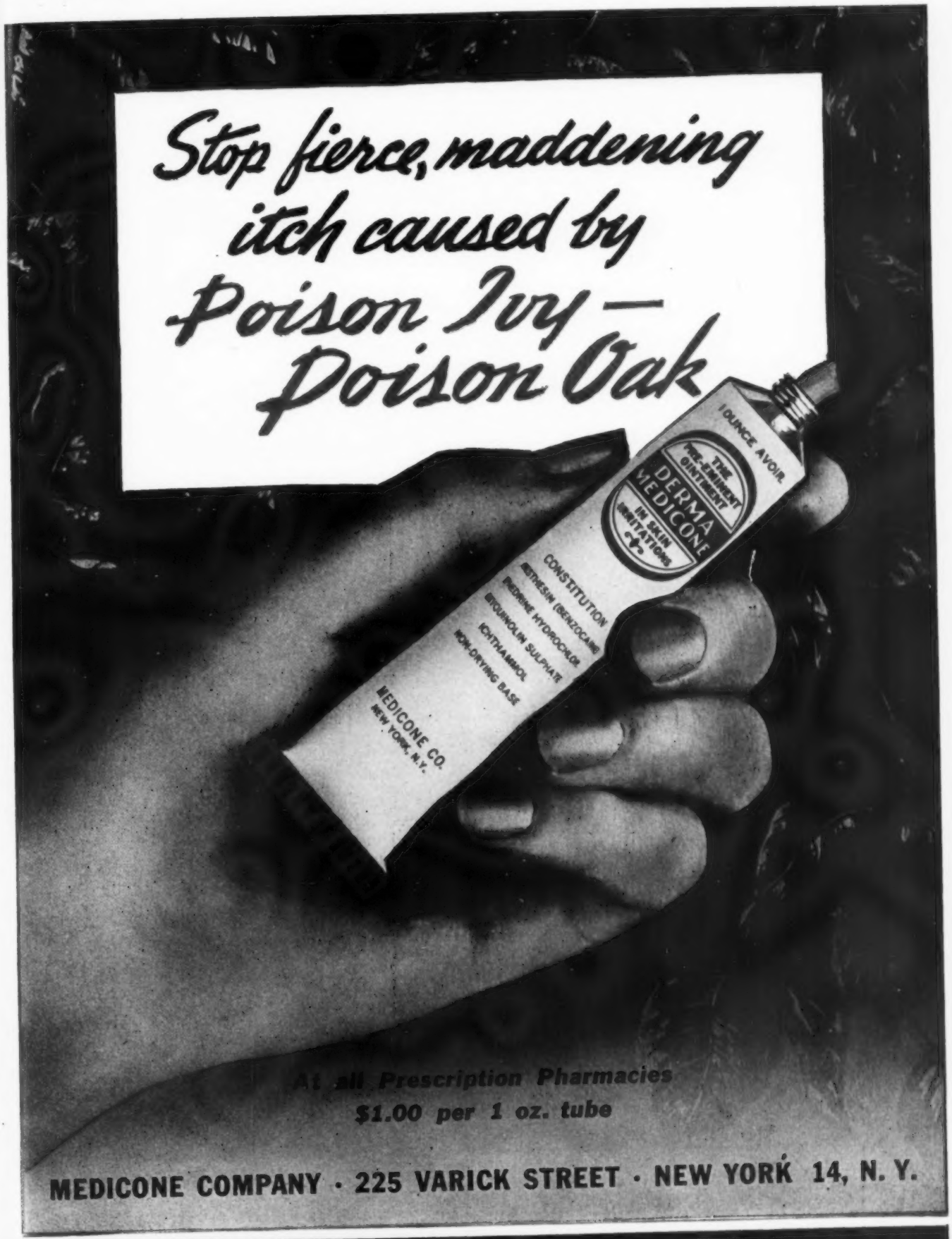
tory support. The careless, thoughtless, unfounded opinion is a damnable scourge to the true significance of the occupational diseases. In closing, you are aware by this time that this paper has been no scientific exposé, nor was it so intended. There are numerous sources for the novitiate in this type of practice to ascertain the scientific data necessary for his knowledge. I fear, however, that we have reached a stage in medicine where most of us are too dependent upon formulae and figures, to the detriment of practical observation. I also feel that in a general practice we are limited to opportunities for constructive observation. Industrial medicine, on the other hand, offers an opportunity to utilize one's own senses without in many instances, laboratory equipment. Dare I even hope that I have stimulated even a very few of you to accept the opportunities industrial medicine offers for practical observation and, like Semmelweiss, by such God-given means make an undying contribution to medicine?"

How They Are Absorbed

DR. ROBERT A. KEHOE, Kettering Laboratory of Applied Physiology, University of Cincinnati, "Industrial Toxicology and Industrial Poisoning," lecture at Postgraduate Course in Industrial Medicine and Hygiene, University of Illinois College of Medicine, published in *Illinois Med. J.*, May, 1944 (85:5, 261-266). Extract: "Materials that have to be handled by industrial workmen may be swallowed as the result of putting contaminated fingers, tobacco, tools, food and beverages into the mouth and also by swallowing particulate matter that has been deposited in the nose, mouth, and throat out of the stream of inspired air. A considerable proportion of the dust that is inhaled finds its way into the gastro-enteric tract by this means. Many materials are capable of absorption through the skin. Most of these materials are fat-soluble oily substances of comparatively low volatility, but there are others that do not fit into this group of compounds. It must be remembered that many liquids, solids, and gases can penetrate the unbroken skin, and, therefore, any new material must be tested in this regard before one can be certain of its potentialities with respect to cutaneous absorption. The inhalation of gases, vapors, fumes, or droplets of spray suspended in air provides the most effective means for the absorption of noxious materials into the body. This comes about (1) because of the large volume of air that is breathed in, amounting to from eight to 10 cubic meters in the course of an eight-hour working day, (2) because of the ease with which most substances penetrate the microscopically thin pulmonary membrane, (3) because of the very large surface of the pulmonary membrane, (4) because of the great volume of the blood that circulates in the lung tissue, and (5) because of the difficulty of avoiding such exposure. The last factor is of peculiar importance; it is comparatively easy to avoid contact of the skin with dangerous materials, especially if they are irritating to the skin and thereby give warning of their harmful properties; it is even easier to avoid taking poisonous substances into the mouth through the exercise of normal care; it is not so easy to avoid breathing contaminated air, while the use of masks and similar protective devices is a source of such inconvenience and discomfort that many workmen will prefer to take chances by avoiding their use. Care and skill are required in designing, operating and ventilating equipment so as to avoid a significant degree of contamination of the air with dangerous substances. If protection cannot be provided by this means, respirators of some type are required, and, under suitable circumstances and under proper conditions with respect to choice of equipment and supervision in its use, adequate protection can be given. Progress in the development and manufacture of such equipment has been very rapid, and it is now possible to obtain suitable masks and respirators."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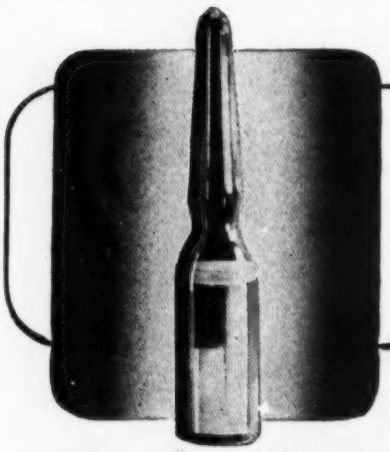

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Bibliography

SNYDER, R. G., SQUIRES, W. H., FORSTER, J. W. and RUDD, E.: A Comparative Study of Ultraviolet Irradiated Ergosterol (Steenbock Process) and Electrically Activated Ergosterol (Whittier Process)—A Preliminary Report, Journal-Lancet, *114*:25 (Jan.) 1944.

GOLDBERG, S. A.: The Pathology of Arthritis, Amer. J. Clinical Pathology, *14*:1 (Jan.) 1944.

ZISKIN, D. E., GIBSON, JR., J. A., SKARKA, A. and BELLOWS, J. W.: Effect of Large Daily Doses of Vitamin D on Teeth and Jaws of Rats and on Humans, J. Dental Research, *22*:457, (Dec.) 1943.

REYNOLDS, C. and BURNS, E. L.: The Effect on the Rat of Prolonged Administration of Large Doses of Electrically Activated Vaporized Ergosterol, Indust. Med., *12*:835 (Dec.) 1943.

SNYDER, R. G., SQUIRES, W. H., FORSTER, J. W. and RUDD, E.: The Therapeutic Value of Electrically Activated Ergosterol When Administered Intramuscularly—A Preliminary Report, Indust. Med., *12*:663 (Oct.) 1943.

SNYDER, R. G., SQUIRES, W. H., and FORSTER, J. W.: A Six-Year Study of Arthritis Therapy with Special Reference to the Pharmacology, Toxicology and Therapeutics, Indust. Med., *12*:291 (May) 1943.

LEVINTHAL, D. H. and LOGAN, C. E.: The Orthopedic and Medical Management of Arthritis, Journal-Lancet, 63:48 (Feb.) 1943.

REYNOLDS, C.: Comparative Therapeutic Value and Toxicity of Various Types of Vitamin D, Journal-Lancet, *62*:372 (Oct.) 1943.

SNYDER, R. G., SQUIRES, W. H., FORSTER, J. W., TRAEGER, C. H. and WAGNER, L. C.: Treatment of 200 Cases of Chronic Arthritis with Electrically Activated Vaporized Sterol (Ertron), Indust Med., *11*:295 (July) 1942.

STECK, I. E.: Further Clinical Experience in the Treatment of Arthritis with Vitamin D. Ohio State M. J., *38*:440 (May) 1942.

SNYDER, R. G. and SQUIRES, W. H.: Follow-up Study of Arthritic Patients Treated with Activated Vaporized Sterol, New York State J. Med., *41*:2332 (Dec.) 1941.

REED, C. I., STRUCK, H. C. and STECK, I. E.: Vitamin D: Chemistry, Physiology, Pharmacology, Pathology, Experimental and Clinical Investigations, pp 275-310, University of Chicago Press, 1939.

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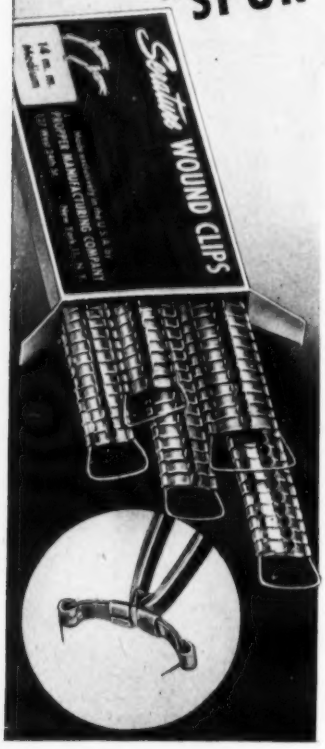

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DR. H. H. CHRISTOFFERSON, Colby, Wisconsin, "A Wisconsin Physician Looks at the Wagner-Dingell-Murray Bill," in *Wisconsin Med. J.*, May, 1944 (43:5, 546-548). Extract: "Now, gentlemen, what have we, or what has organized medicine, to offer in comparison with this great regimentation of the doctors and the people of the United States? (1) Organized medicine has labored for years to create a high standard of medical education. We stand to retain the present high standard. (2) We stand for a free choice of physicians so that the rich and the poor alike can have whatever doctor they want to care for them. (3) We stand for an open panel for all industrial accidents, as we now have in Wisconsin. (4) We stand ready to aid all industrial plants, labor unions, farm organizations, or any other group that may wish to set up a pre-payment plan for sickness care, provided that in that plan they have a free choice of physicians and that they collect enough dues to give the doctors a reasonable fee for the services rendered. (5) We stand ready to aid all county and state health units to the end that all of our children shall receive the very best of preventive medicine. (6) We advocate that all doctors' bills shall be rendered on the ability of the patient to pay. (7) We stand for an equal distribution of doctors so that a doctor shall be readily available to every person in the country. We stand for that now and particularly after the war. (8) We stand for a proposition whereby all indigents and all people receiving Federal or state aid shall be cared for on a basis of 50% of the ordinary fees in that locality. (9) And last, we stand for a proposition whereby the personal relationship that now exists between the doctor and his patient shall always be maintained. Having labored under these principles for the last 50 years, what have we accomplished? When the notorious Assemblyman Biemiller cried out in the legislative halls at Madison in 1937 that it was necessary to have a change in the distribution of sickness care because the people in many sections of the state were dying for the want of a doctor, organized medicine immediately appointed an investigating, roving committee which traveled from Superior to Kenosha, from Milwaukee to La Crosse, and down the state to Lancaster. That committee traveled and worked every Saturday and Sunday for 10 months. The secretary made arrangements for the committee to meet representative people from every walk of life in various county seats. We saw such people as the county judge, the county poor relief commissioners, the relief committee of the county boards, members of the county boards, county nurses, principals of schools, parent-teacher associations, labor unions, captains of industry, farm groups and organizations. We interviewed those people in groups of two, three and four, and in no instance did we find that the people anywhere knew of any one who was suffering for the want of a doctor. Again I say, following the principles as outlined by organized medicine, we have increased the span of life in the last 50 years from 36 years to 62 years. We have also accomplished the fact that this nation is the healthiest nation in the world. Wisconsin stands third in the list of states in regard to public health. North Dakota is first, South Dakota

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Medical Service Plans

DR. L. FERNALD FOSTER, Secretary, Michigan Medical Society, "Medical Service Plans — Discussion," in *J. Indiana State M. A.*, May, 1944 (37:5, 259-260). Extract: "The development of Michigan Medical Service obviously had to be made without the benefit of adequate actuarial and statistical data. As a result of this situation the corporation as of October 31, 1942, sustained a deficit of $504,000. However, on January 18, 1943, this figure had been reduced to $136,000, with fairly definite assurance that by the end of March the corporation will be operating without a deficit. When that point has been reached, various procedures may follow—for example: (1) Reserves may be established. (2) Repayment of a 20% proration, established for a five-month period, to the doctors of medicine of the state. (3) An increase in benefits. (4) An increase in professional fees. (5) A lowering of subscription rates. (6) A more rapidly-increasing enrollment. As a result of our experience, it would be well in considering the establishment of a Medical Service plan to consider the following suggestions: (1) Secure an enabling act—one separate from an act authorizing *hospital service*. (2) Begin with a program for catastrophic illness, viz., surgical service in a hospital—avoid a program of full coverage at first. (3) Do not establish rates *too low*. (4) Do not permit too rapid enrollment. (5) Have control in hands of Doctors of Medicine (majority of the board of directors). (6) Do not allow lay groups, such as labor or industry, to dictate details of operation and provisions. (7) Choose a director with great care. (8) As originators, be prepared to be 'bumped' severely with criticism, and be prepared to give many hours of your time to the development of the plan. Out of the welter of all the present-day uncertainties, one thing is certain: we must operate these plans; they must grow and spread if pre-payment for medical service is to be a *voluntary* thing and not a *compulsory* program."

"Workers Want . . ."

ROBERT J. WATT, International Representative, American Federation of Labor, "Postwar Industrial Health," in *Dental Health*, May, 1944 (4:2, 8). Extract: "Workers recognize clearly that the cooperation of the medical profession is essential to the efficient operation of any program providing for medical care. We know that you are familiar with the significant changes in medical knowledge and the improved techniques of medicine. We are also familiar with the fact that only a few have the benefits of your knowledge and improved techniques. As a representative of an organization of nearly seven million men and women, I can sincerely say that we are anxious for your help and advice. What we propose may not be a finished product, but we remember the long struggle to get workmen's compensation which we have not yet won. We remember the struggle to get compensation for occupational diseases which we have not yet half won. And we remember that in almost every state we have made the fight alone, and some of our older folks wonder, even if we tried, could we always be wrong? Workers want to provide the essential groundwork for a system of medical care insurance which will enable the people of the United States to pay for their medical care in small regular amounts through payroll deductions during employment without disturbing the professional aspects of medi-

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cal practice. We believe only the methods of payment will be changed. We believe the choice of a doctor should be assured under any system and, even more important, the opportunity for change of physician should be left to the individual. Under ordinary circumstances, the workers would continue to be treated by the same doctors if they have a doctor. Unfortunately, far too many of our people no longer have a family doctor. They wait until sickness comes before calling on one. But an insurance system would provide an incentive for families to choose their doctors in advance, since they will know that payment in time of illness will be provided to the physicians they select. We believe that the relationship between the physician and the patient should be improved since the important financial barrier will be removed."

Industrial Psychiatry

LOWELL S. SELLING, M.D., PH.D., DR.P.H., Detroit, "An Introduction to Industrial Psychiatry—for Industrial Administrators, Personnel Workers, and Plant Physicians," in press. Foreword: "In spite of the fact that psychiatry has a great deal to offer to industry, the impact of this branch of medical science has not been felt by industrial leaders, except when a case of mental disease has been a bone of contention. Neither labor leaders nor plant managements have seen the advantages to them if they were to have competent psychiatric advice on some of the problems which confront them. Many personnel workers do not have any understanding of what psychiatry has to offer in the industrial field. Part of this is due to the fact that the number of psychiatrists who have had the time and opportunity to do psychiatric work in industry and to show the value of what they have to offer has been very small. Another reason has been that to comprehend the concepts of psychiatry in the past has required a type of mind which is not usually found in engineers and in people who work primarily in the mechanical field. There is a third reason, which lies in the absence of literature in the field. Only a relatively small number of articles have been written on industrial psychiatry, and the books which have been written on this subject can be counted on one hand. In recent years the writer has made some contributions to the literature, and after Pearl Harbor he has found himself definitely involved in an active study of the subject. The Recorder's Court Psychopathic Clinic which deals primarily with problems of the worker has been a fertile source of research in how the workers live, what their problems are, and what their attitudes are. It is a fortunate circumstance that the writer lived in Detroit and had contact with many industrial leaders as well as those interested in industrial safety, and fortunately he has had the cooperation of a number of labor leaders in pursuing his studies. The problems of the motorist-worker, i.e., the truck driver, bus operator, and streetcar motorman were constantly before us in the Traffic Division of the Recorder's Court Psychopathic Clinic which employs among others the services of a man who had many years' experience in the personnel department of a large street railway and busline. In addition, the psychiatrists and psychologists in the Clinic have been frequently called upon by departments in the City of Detroit, particularly the Civil Service Commission, to study and advise about industrial personnel problems. After Pearl Harbor, when we found that the working hours of the Recorder's Court Psychopathic Clinic could not be extended to a full 48-hour week as requested by the President, three members of the staff took active part-time jobs in industry; one worked as a safety engineer and the others worked as general plant employees. A fourth member of the Clinic gave courses to personnel managers and others working in personnel departments in the City of Detroit and had a chance to survey what the personnel departments needed and what their weaknesses were. The observations of all these employees plus the writer's own observations as a referee in some contentious industrial problems and as a researcher in the field, combined with the survey of the literature have made available a mass of facts which have been put together in this book in the simplest possible form to show the industrialists, personnel managers, and the workers themselves what can be gained from psychological study. The result, I hope, has been to give these people some information which they can apply to their problems. Sometimes these problems will be so great that the expert psychiatrist who has had some experience in industry will have to be called upon to act as consultant."

The Physician: Central Figure

DR. STANLEY J. SEEGER, Chairman, A.M.A. Council on Industrial Health, Report of Council at Sixth Congress on Industrial Health, Chicago, in *J.A.M.A.*, May 27, 1944 (125:4, 240-241): Extract: "The contacts necessary for the physician to organize health activities exist. It is recognized that other groups, business, labor, insurance, government as well as several non-medical professional skills, have a real interest in the delivery of health service. It is our concern that the physician should be the central figure in the organization which delivers such service. The physician's place in such a program will be dependent on his own leadership, his place in his own community. The problem is essentially a home town problem. While we have perhaps become conditioned to look for master blueprints, we should remember that the minimum requirements for health services in industry have been defined and the principles involved are well known and well understood. The delivery of competent health service in industry demands that the position of the physician in the structure of industrial organization be clearly visualized and that his relationship to other interested skills should be clearly analyzed."

ARM-CHAIR PHILOSOPHY and RESEARCH

TO THE EDITOR:

IF I MAY offer a suggestion for your excellent magazine, what do you think of having a page or two each issue for "Armchair Philosophy and Research?" In other words, a sort of sounding board for members of the Associations to pop off a little, as they are already doing in certain articles which sometimes appear a little incongruous in the main body of the publication. The following might be an example. It is the personal expression of certain purely personal ideas which have interested me for some time.

—A. C. DICK, M.D., Medical Director, Consolidated Vultee Aircraft Corporation.

YOU KNOW how much discussion there has been of the problem of pre-payment and hospitalization plans, and how all intelligent people feel toward Federal or state bureaucratic control.

As an example of how such things will work, I find, in analyzing the proposed new over-all social security tax program and applying it, hypothetically, to medical and hospital care for the employees of the San Diego Division of our organization, that—if it were so applied by law—the bureaucrats would have allocated approximately $5,000,000 a year for medical care and hospitalization for the employees of this plant and their families.

For my own interest I developed a hospitalization and medical care program which could be applied to this same Division, and I discovered that if such a plan were in effect, and operated by myself, I would be unable to spend more than $1,300,000 a year, and that this, incidentally, would pay for a 300-bed hospital in about five years. This is more alarming than amusing.

I believe it is safe to assume that only a small portion of the people really want a rigid system of panel medicine, but rather that the vast majority would still prefer to exercise the right of free choice of physi-

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cian, but would like to find some way to anticipate the cost of hospitalization and medical care if such a system would not result in a deterioration of quality of service or the sincerity of the physician-patient relationship.

With this in mind, let us take an example of an urban community where we have the following factors:

1. Population approximately 90,000.
2. Approximately 25,000 gainfully employed.
3. 500 hospital beds available.
4. 50 doctors practicing in the community.

Second, let us take the following assumptions:

1. That the gainfully employed persons would willingly and voluntarily agree to a four-dollar a month (or one-dollar a week) payroll deduction made which would insure complete medical and hospital care for them and their families.
2. That the employers of these persons would receive enough benefits in the reduction of insurance premiums as the result of having such a plan in operation that they would contribute 50 cents a month per employee to the fund.
3. That the doctors in the community are a cross section of those in the country as a whole in that some will work much harder than others and will make more money than others. And, further, that there will be at least a half of the doctors in any area, who, if they would make a comfortable living, would prefer not to do an excessive amount of work.
4. That a Board of Directors for the administration of this plan would be elected or appointed from:
   (a) The medical society.
   (b) The employer group.
   (c) The hospital and community welfare organizations.

This Board would then have at its disposal $1,250,000 a year to pay for the hospitalization and medical care of all the people in the city. This could be disbursed as follows:

1. Each hospital bed of the 500 available could be maintained at a rate of $5 a day for 365 days a year. This certainly should be adequate for the highest grade of hospital care.
2. $437,500 would be left for distribution among the 50 doctors in the community as reimbursement for their services; this would amount to $8,750 apiece.
3. A base rate of pay would be established for all doctors in the community of $4,800 a year, for which they would perform the amount of service which would ordinarily be considered reasonable for this sum of money.

It is conceivable, unless I am a very poor judge of human nature, that 25 of the 50 doctors would coast along on this rate, which would leave $197,500 a year to pay for extra units of work for those doctors who were anxious to be kept busy and who had, because of their various qualifications, a larger practice in the community. This would mean that if 15 of the remaining 25 doctors were to work twice as hard as the average they could net $9,600 a year for their efforts. It would also mean that the 10 leading doctors in the community, if they were able and willing to put forth extra effort, would each be able to net $17,350 a year, which is approximately all that anybody could make after taxes anyhow.

4. The basis for establishing the units of work would be a very simple problem. I am not sure that the estimates with regard to the average income of physicians in a community is entirely accurate, but I am reasonably certain that in any area not over one-half of the doctors have a net income of $4,800.

Further, inasmuch as this is a voluntary plan two choices could be left for the doctor:

1. That he could maintain his private office, if he saw fit to do so, to take care of the certain percentage of inhabitants who would not be willing or eligible to join in this plan, or
2. That he could close his office and do away entirely with this overhead and see his patients in the outpatients' department of the hospitals.

Of course, I realize that there are many details left unsettled in the short exposition above, and yet I can think of no better way to satisfy a public need in an ethical, professional obligation.

The operation of such a plan in a smaller community would be an even simpler proposition, whereas in a large city the problem would be no more difficult than in a community of 90,000 for the simple reason that, no matter what the size of the city, in most cases it is divided up into geographical or ethnological divisions which are not greatly over 90,000 at the most.

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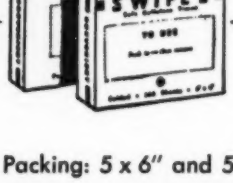

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consideration the fact that certain outstanding individuals in the medical profession might object to such a plan and, in spite of their objection, might be forced by public opinion into falling in line with it.

TEN YEARS AGO in "INDUSTRIAL MEDICINE"

GROUP MEDICAL PRACTICE—A private group medical clinic, which may be described as a medical department store, is in competition with the individual private practitioner of medicine just as the usual department store or chain store is in competition with the individual shop or storekeeper. Probably during the lifetime of the present generation at least, the department store and the individual specialty shop, each having its own strong and weak features in so far as the patronizing public is concerned, will continue to exist side by side; and as time goes on it will be a question of the survival of the fittest in giving satisfactory service, or it may be that each will have a permanent place in the scheme of things. In the same way, and without attempting herein to cover the pros and cons of private group medical practice, it would seem that for a long time to come there probably will be room for the individual private practitioner of medicine and also in some communities, a few of these so-called medical department stores. In the meantime, the public, including the vast army of industrial workers, should be allowed the utmost freedom of choice in regard to the type of medical service of which it desires to avail itself, just as in most instances it is permitted to choose with reference to the purchase of other similar services and requirements of life.

—From "Industry and the Future of Medicine," by LEVERETT D. BRISTOL, M.D., DR.P.H., in INDUSTRIAL MEDICINE, June, 1934.

SMALL industrial groups have always presented the problem of adaptation when considering a medical service. The main difficulty with the industrial executives in small groups is that they have persuaded themselves that a certain psychological fallacy is true, namely, that because they only have a relatively small number of employees it would be impossible to provide medical supervision for them, no matter how great the need. Of course, this problem becomes of greater importance in the present situation of financial stringency, although the psychological fallacy is still potent. The truth is that upwards of 90% of industrial organizations in this country employ even in good times less than 500 persons in each plant. Approximately 95% of all industrial employees, therefore, are to be found in such organizations; it follows then that medical services and health supervision have not been applied to more than 5% of the total industrial population.

This does not mean that successful service has not been rendered in small groups—this has been brought about principally in two ways: by the grouping of small industries in such a way that one physician is able to take care of several; or by one physician devoting part time to a small practice, or hospital work. Interestingly enough, there are instances where groups employing 300 to 400 persons have engaged the services of a full-time industrial physician. Apparently these plans worked out, not only for the advancement of the industry but also for the continued progress of the physician.

Perhaps no better example of successful medical work in small groups is available than the excellent work carried on by the Philadelphia Health Council and Tuberculosis Committee through its medical director, DR. GLENN S. EVERTS. This plan was based upon the working out of a service for units of 1,000 employees, grouped geographically in such a way that they could be served by physicians and nurses devoting a prescribed amount of time to each unit. In the beginning a demonstration was given of what could be accomplished, the experiment being conducted over a period of several months; when the officials were satisfied as to what could be done, arrangements were then made to have the group continue its own service, the Philadelphia Health Council supplying the part-time personnel—salary and expense being paid by the industry. Through such a plan, the work became a "going concern," before the industry was obliged to pay for it.

It is obvious that the most important factor in the continuation of health service and medical work for small groups is the continued and proper use of part-time physicians and nurses. This should not detract from the quality or standard of the work done, for it is the part-time physician who does most of the industrial work today, the figures showing that there are about 50 of the part-time type to one of the full-time medical men in industry.

—From "Problems in Industrial Medicine," by C. O. SAPPINGTON, M.D., DR.P.H., in INDUSTRIAL MEDICINE, June, 1934.

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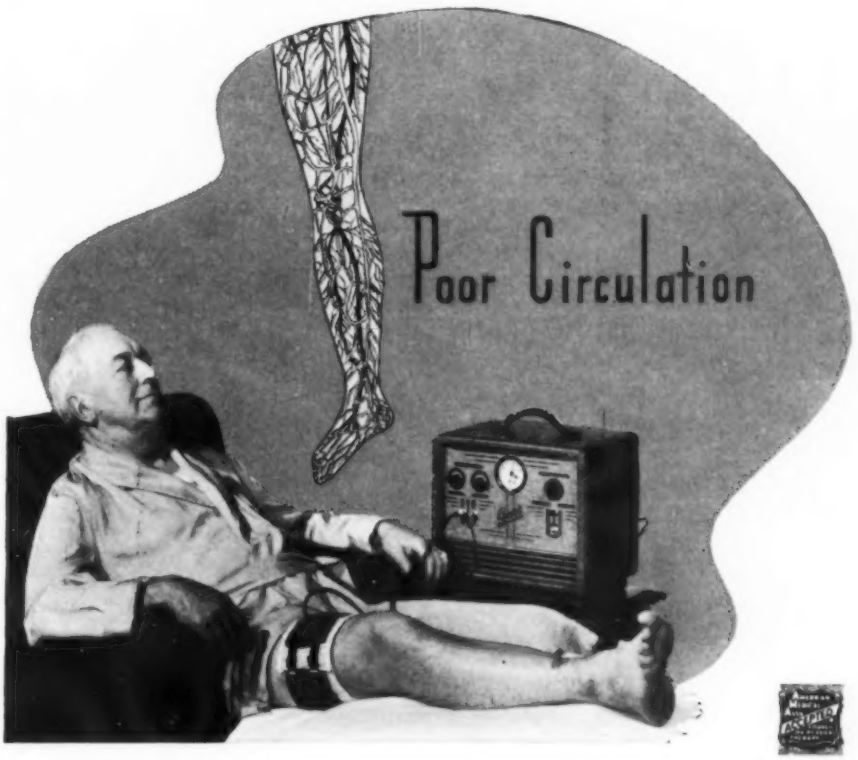

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Industrial Medicine

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The Journal of Industrial Health, Occupational Diseases and Traumatic Surgery

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The Science, the Law and the Economics of Industrial Health

Volume 13 June, 1944 Number 6

Pyschogenic Factors in the Care of Women Workers

—A Practical Approach for the Industrial Physician—

MARION J. DAKIN, M.D.,
Plant Physician,
Lockheed Aircraft Corporation,
Burbank, California

THE last two years have seen a great widening in the scope of the industrial physician. No longer will a knowledge of minor surgery and an understanding of common industrial hazards suffice. The industrial physician now finds himself faced with the necessity of functioning as an amateur psychiatrist in every phase of his work.

The reason for this is women—hundreds of thousands of them—not the seasoned women factory workers of pre-war days, but housewives, office workers, shop girls, and students—women of all sizes and all ages. The conversion of these new and inexperienced employees into smoothly operating units of the production line has opened a whole new field of industrial medicine.

The original apprehension about the physical adaptability of these women to the demands of production work has been overshadowed by the necessity for special emphasis on their mental and emotional adaptation.

In the first great wave of patriotic appeal many a woman came to the factory to do whatever she could in the emergency. The radio, the billboards, and the newspapers all told her that if she could operate a Mix-Master or run a vacuum cleaner, there was a job for her in the aircraft industry. She came willing and anxious to work, expecting only in return that a man's job be modified to something within her capabilities.

Factory supervision, for the most part, had strenuously fought the coming of women and accepted them only under pressure. Many of them made no attempt to disguise their displeasure and did everything to make the women feel stupid, awkward and unwanted.

Such obvious factors as these were only minor details in the far more subtle and all-inclusive problem that really forced a change of emphasis in our adaptation of women in industry.

It is a recognized human trait to fear the strange or unknown and to interpret it in the most pessimistic way. Nearly everything about these factory jobs is strange to our women, and the actual physiological effects are often unknown. A more fertile field for unfounded fears and pessimistic interpretations would be hard to find.

It is also a very human trait to seek cause for failure outside one's own inadequacies. During the period of rapid plant expansion, when physical and personality requirements for employment reached an all-time low, many women were hired who were entirely incapable of adapting themselves, physically or emotionally, to the jobs. When such a woman found herself tiring physically or completely unhappy in the work, her subconscious reaction was to seek outside factors to explain her failure to herself. The natural result was that she decided the work she was doing was too heavy, had harmful vibrations, gave off "noxious electrical currents," or was too noisy for a woman's "delicate nervous system."

Too frequently, the busy private physician she eventually consulted, knowing nothing of the factory work, and confronted with no demonstrable physical ailment, would nod absently just at the moment she blurted: "And I think that kind of work is harmful to women, don't you?" With this quite unintentional confirmation of her wishful thinking, the misfit employee would rush back to work for a few more days. Those days were divided between besieging the medical department for a transfer and conducting a campaign among her fellow workers to warn them of the dangers of the job before they, too, succumbed.

And so was born a chapter in our new book of Old Wive's Tales. Eventually this story reached the supervisor. He was one of the bewildered males who had always said, "I wouldn't even try to understand a woman," and was quite ready to believe the worst. The resulting apprehensive attitude of supervision did nothing to counteract the tentative fears of the previously happy employees our misfit had propagandized.

Even the industrial physician began to question his common medical sense when faced with mounting numbers of the same type of symptoms from a given job. He had no nice round statistics with which to combat these epidemics, because there weren't any on most of these questions.

So rapid has been the absorption of women into

Presented at the Annual Meeting of the WESTERN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS, Los Angeles, May 6, 1944.

these jobs and so constantly varying the conditions, that real life follow-up studies have been impossible, and to reproduce the natural job conditions in a laboratory type of study on each of the hundreds of jobs was entirely too impractical to contemplate.

Faced with rapidly multiplying instances of what we felt sure were unfounded fears and misconceptions, or, at worst, correctible conditions, Lockheed undertook to make the only sort of study that seemed likely to furnish factual material with a minimum of distortion.

Instead of trying to bring the jobs to the plant physician, why not send the physician to the jobs? A woman physician of about the same size and age as the average woman employee should be a satisfactory guinea-pig, provided supervision and fellow workers did not suspect her purpose, and so alter the normal circumstances.

SO I SPENT four months, incognito, as a trainee and production worker, experiencing the actual physical and mental stresses inherent in every type of job undertaken by women in aircraft.

When I finally emerged from the slacks, bandanna, and grease, not only had I found most of the answers we wanted, but I had the additional satisfaction of knowing that should the future of women in medicine ever become too dark, I can always make a good living as an airplane plumber!

Probably the most important single answer obtained from the experience was that aircraft work is *not* too heavy for the physical capabilities of the average woman.

The only jobs that tired me physically were those on which I was *unhappy*. Both were light work.

On one job I was assigned to a type of riveting for which I had not sufficient training or skill. The fact that I kept "pulling butches," and the consequent suppressed irritation of the leadman, gave me a constant feeling of inferiority. I developed headache, neck ache, backache, and menstrual disturbances. The other job that tired me was precision installation. The tiny girl who taught me had installed that side gun window for eight months and loved it, but if there is one thing I like less than finicky details, it's having my knuckles rapped—and that job was a wicked combination of both. At the end of the second day I was developing all the classical symptoms of "nervous exhaustion."

By way of contrast, one job that did *not* tire me physically was considered one of the "toughest" jobs we have for women. When I asked my supervisor to transfer me from a lighter job to riveting in the upright wing jigs, his astonishment was poorly concealed. It was obvious that he questioned my sanity. But I loved that job, so its effect on me proved stimulating rather than fatiguing.

One of the chief purposes of my sojourn in the plant was to find out just what the vibration from a rivet gun did to the nerves and muscles of a woman's hand and arm, and, if possible, to ascertain some means, such as padding the handle of the gun, to eliminate some of the transmitted vibration. I was astonished to discover that there is no perceptible vibration from a rivet gun of the size used in aircraft production. Having thus eliminated the vibration factor (and without padding), we find that the so-called "rivet arm" is due simply to prolonged use of the same group of muscles in a tense position.

In a later study of several training schools, I found that a certain number of the women had heard lurid tales of the effects of the vibration of the rivet gun, and consequently objected violently to being trained as riveters. Those women were invariably the ones who promptly developed arm symptoms—undoubtedly the result of exaggerated muscle tension because of a specific fear. The type of training and simple physiological explanation which I shall describe later, should usually counteract such psychogenic factors.

Another rumor that crops up at intervals concerns riveting as a causative factor in cancer of the breast. I belong to the school of thought that puts trauma at the bottom of the list of pathogenesis for breast carcinoma. Nevertheless, it was gratifying to learn that not only is there no transmitted vibration from a rivet gun, but that, furthermore, effective riveting is not performed with that portion of the normal anatomy. So we can go right on assuming that the occurrence of malignancy of the breast in a woman riveter is purely coincidental.

The question about "riveters' ovaries" in aircraft workers is as easily answered when the factor of vibration is ruled out. All we have left to blame for any pelvic complaints occurring in women riveters is either simple coincidence or the flare up of an old P.I.D. as a result of constant standing.

To the question, "Should pregnant women rivet?" our answer is still, "No." The reason is not a physical one, but a psychological one. There is nothing about ordinary riveting that could harm a healthy pregnancy, but public misconceptions are so deeply rooted that we know it would be virtually impossible to convince a woman riveter (or the law) that her miscarriage was not due to the nature of her work. We are glad to keep a pregnant woman at work up to the sixth month, provided she is otherwise well. We simply limit her to light work.

Another of the most recurrent complaints from women had been that the excessive noise in certain locations was unbearable. Here again the emotional response of the employee to the specific job is a major factor.

Speed hammers are the machines that have to be enclosed in a sound-proof room to prevent their disturbing the drop hammer operators. The woman who taught me to use a speed hammer had been working in that section for eight months. She liked it so well she did not even take her permitted rotation into quieter, less vibratory sections. In discussing my riveting experience she remarked, "They tried to get me to rivet when I first came, but I flatly refused. Why, I couldn't stand all that noise and vibration!" I've always wanted to meet the interviewer who executed that bit of whimsy. He must be very naive or a salesman par excellence.

We have found that in those few areas where noise is excessive any actual effect on the hearing can easily be eliminated with properly fitted ear plugs. However, after several months of having to shout at fellow workers and straining every muscle to catch directions and conversations from others, some women will experience an accumulation of nervous fatigue. I feel that this cumulative effect can very well be prevented by a system of rotation which gives these workers scheduled rest periods of a week or two in quieter sections.

Rotation of work is equally valuable as a preventive measure on monotonous jobs and in work requiring constant use of small muscle groups.

Fortified with these and scores of other answers, the medical department has had a basis for evaluating the psychogenic factors in the women's problems. It has thereby improved its own technique in handling individual medical problems and widened its scope of helpfulness to other divisions.

In pre-employment examinations today we have not completed the job when we decide if a woman is physically fit. The real problem now is, "Fit for what?" We have learned that there is a job for every able-bodied woman. But not every woman is fit for every job.

Thus, for example, if we allow a fat girl to be put to work climbing over the tops of planes, she will be a liability, and miserably unhappy. Sooner or later she will land in a first-aid station with a wound resulting from her tense ungainliness or with palpitations and stomach complaints arising from her feeling of inadequacy on the job. That same fat girl, properly placed at sedentary bench work, would be a good worker and happy.

On the other hand a little wiry girl might be bored literally stiff by the bench work—so stiff that she would develop all sorts of aches and pains through her neck, shoulders, and arms. In protecting these sore muscles (due to nervous tension) she will hold a tool incorrectly, produce an improper leverage and—whoops!—there's an epicondylitis. This same little wiry girl would have been happy and relaxed with an active job climbing about on a big jig.

It is evident, therefore, that the examining physician who is reasonably familiar with the individual jobs has a very valuable contribution to make in sizing up the general physical, mental and emotional attributes of the woman well enough to assist personnel in preventing unfortunate placement.

Besides helping in the proper placement of the physically fit women, the medical department can do much to aid in the successful utilization of the handicapped individual. During the early phases of rapid expansion, Lockheed's medical department developed a plan of physical limitations, by means of which any woman with a physical disability may be limited to a type of work within her special capabilities. For example, if she is found to have no depth perception, she is given limitation (I), which means she may not work on hazardous machinery, such as a drill press. If she has a history of "weak back" or hernia, she will be limited in Class (II), which means no jobs requiring lifting. The other limitations (there are six in all) include no climbing or scaffold work, no exposure to dust or fumes, no excessive walking or standing, and a miscellaneous group for special problems.

The physical advantages of such a plan are obvious, but the psychological effects are equally important.

At the time of pre-employment examination the applicant is made cognizant of the import of frankness about any known defects—that such defects will not necessarily eliminate her, but will be considered in placing her in work where she cannot harm herself or others. Examining physicians find it easier to elicit retraction of suspected false statements on medical questionnaires since this plan was instituted. Also, the effect of the woman's knowing that special pains are being taken to place her on a job within her special capabilities is very comforting in her initiation to the overpowering environment of the factory.

Furthermore, the dot which is placed on the badge of a physically limited worker is the moral support she needs in those occasional loans from one department to another. A leadman not familiar with her deficiency might request her to undertake work that would be dangerous to her. She does not need choose between obeying or discussing her hernia or "falling womb" with the boss—she need only to say, "I have limitation (II)."

We have found the majority of these properly protected handicapped workers have the kind of gratitude and loyalty to their job and the company that makes valuable workers.

Once hired, the next phase in the life of a new woman employee is of paramount importance. That is the training or induction period. Major responsibility for this phase of the woman's adaptation to the factory falls on the training and education departments. The medical division can widen its scope of usefulness by aiding these departments in an advisory way.

The average new woman employee has never been inside a factory before. It is a frightening experience. She is apprehensive about everything: her ability to learn the job, the frightening tricks of the rivet gun or drill motor, and the numbness that develops in her hand after the first few minutes of work. All these emotional hazards tend to make her tense in every muscle, with the result that by the end of the first eight hours of training she is sore all over and more apprehensive than ever.

Obviously, such a woman will need more than the week or two that it takes to teach a man these skills. It is up to the medical department to encourage the institution of longer and more elastic training periods to permit a more gradual and complete emotional adjustment of the housewife or department store clerk to the factory environment, before she is sent out on the line.

We can also assist the education department by collaborating in the selection of good movies and slide films on subjects such as nutrition, safety, and general health and hygiene to aid women in their acclimation to this new environment.

The medical department should insist that trainees have an extra 15 to 20 minute rest period, twice a day, preferably out of doors and away from the noise. During these special rest periods a woman physiotherapist, specially trained in corrective exercise work, and with personal experience on the production jobs, should be supplied by the medical department to supplement the specific job instruction.

This physiotherapist can show the trainees how to avoid unnecessary muscle strains and teach them simple exercises, which can be used *on the job* to counteract muscle fatigue inherent in each type of operation. She can teach the new employee the importance of staying within her capabilities during the early phases of her induction period and emphasize the necessity of stopping frequently to exercise tired arm muscles for a few seconds. She can do much to allay apprehension by making these women understand that the numbness and aching experienced at first are not signs of imminent paralysis, but that they are nature's warning that the circulation is behind in its work of carrying away waste products—that it is time to pause for relaxation and a little local massage until the circulation catches up and the arm feels normal. It should be emphasized that if this recovery takes more than five or 10 seconds the woman is working too long between pauses.

This type of muscle education and simple physiological instruction can be of inestimable value in preventing discouraging muscle fatigue and frightening muscle damage, and in easing the psychic trauma of those first few weeks, during which most of the terminations occur among the more high-strung women.

TOWARD the more efficient utilization of the many other features of our newer understanding of the problems of women employees, Lockheed medical department has instituted a centralized agency, which we call the Women's Clinic.

Staffed with two women physicians and a skilled physiotherapist, the Women's Clinic is housed in separate quarters away from the regular first-aid work. Because our clinic is not cluttered with the broken toes and bleeding fingers that call for emergency techniques, we are free to make and record more detailed histories and examinations of individual problems, to study and record more carefully the results of various recognized treatments, and to follow the success of experimental innovations in the working conditions of women.

Consequently we are gradually increasing our fund of factual data and further improving our new understanding of women in industry.

The first function of our Women's Clinic is to handle all women's cases of occupational complaints of a non-emergent nature. Every physical complaint that is thought by the patient, her supervisor, or her doctor to be due to the cumulative effect of her work is seen by us.

In addition to the usual questions about symptoms, we take a careful *job* history. If a woman has had to be moved half a dozen times in as many months for one physical complaint or another, we may be forced to classify her as one of the constitutional inferiors we are learning to do without.

If, on the other hand, she has done the same job for a year before developing her sore arm or her exhaustion, we start looking for factors outside the job itself —an abscessed tooth, or beginning menopause—because we know that the capacity for physical work increases with the doing and therefore has no delayed effects. Where we recognize a non-occupational cause we advise the employee to seek immediate help from her own physician or dentist, and, if necessary, direct her to the proper agencies for securing qualified medical aid. If we find that the exhaustion is due to some emotional conflict at work or at home we may call upon the counselor or the visiting nurses to assist in the case.

In those cases where the job is at fault, we contact her supervisor by phone or in person, discuss the problem, make suggestions toward correcting the fault in the work, or assist in selecting a safer job for permanent or temporary placement, sometimes even trying out the prospective job to make sure it is suitable.

To cite one example of a case where the job was at fault—several months ago a weeping woman arrived in the clinic complaining of terrible backache and requesting an availability certificate, because she "just couldn't take it any longer." On eliciting a complete history, we found that she was the first of our women welders and had never missed a day in the two years since starting work.

However, some efficiency minded soul had recently instituted a system of bookkeeping in her department which made it simpler to assign the same worker and the same parts to the same machine permanently.

As senior welder she was stationed at the machine which welded all the wing sections. This part was awkward and heavy and required constant standing. For eight weeks she had seen nothing but wing sections, while the girl at the next machine sat comfortably day after day, spot welding parts six inches square. In his eagerness for efficient bookkeeping someone had forgotten the human equation.

We contacted her department supervisor in person and persuaded him to correct the situation. The heavier standing jobs are now alternated every two or three days with the lighter work, and the top flight welder who wanted to terminate is still there.

It has been a matter of considerable satisfaction to find that the women seen in our clinic for chronic occupational problems, though potentially the most disgruntled and law-suit minded group of employees, are turning into the most appreciative and cooperative patients. As a result of this cooperative spirit the recovery time for such conditions as epicondylitis and peritendonitis is cut from months to weeks, and there is no "lost time" in these cases.

It is not superior medical skill that accounts for these things. It is simply a good illustration of the importance of psychogenic factors in the management of medical problems in women. They like the idea of a separate clinic for their special benefit. As soon as the patient finds that the doctor, a woman, can talk shop language, rapport is established. When she discovers the doctor has done the very same job, we get down to *facts* and mutual respect. Elaboration and exaggeration are omitted, and she is willing to surrender any false notion she may have had, when the true explanation is given in terms she can understand.

Supervision, too, seems to find this ability to use and understand shop language reassuring in medical personnel.

The original attitude of the majority of these men was that any change of methods, either in job planning or in the handling of employees, suggested for the more successful utilization of woman power, constituted "coddling." All these fancy theories put forth by the medical department and other people in beautiful offices might sound very fine—but what did they know about the practical problems of the shop?

They insisted that if you gave these women an inch they would expect a yard. In those days a supervisor, explaining why he didn't have stools for his dozen gray-haired ladies doing detail work on small parts, announced very positively that if the women sat down they would lean their elbows on the bench, and obviously output would drop. The fact that he was constantly having to replace burnt out experienced workers with inexperienced workers was beside the point.

But, gradually, these men have seen the fallacies in their own methods and have begun to recognize what the "fancy theories" have accomplished in the few instances where tried. They have developed a respect for the people in offices who have proved that they do understand something of the practical problems in the shop.

Supervision is eager now for guidance in the proper handling of women workers, and our Women's Clinic is being utilized more and more as a source of such information.

Besides helping supervision with the individual problems which come through the clinic proper, we have a doctor available at all times to meet with groups of supervision or counselors to discuss general problems such as rotation of job operations; warning women to go slowly on new jobs requiring unaccustomed muscle strains; encouraging employees to report at once any real muscle soreness; and appreciating that emotional disturbances can cause actual *physical* disabilities. Questions and discussion flow freely during these sessions and mutual understanding of problems of supervision and the medical department is improved.

AS A RESULT of this improved mutual understanding, the women's division of the medical department has found still another field of usefulness, which we call "trouble shooting."

Soon after the Women's Clinic was started, one of our smaller plants appealed to the medical department for advice concerning a heavy riveting job on which it was becoming impossible to maintain enough women workers. The job had developed a reputation as a "killer."

The Women's Clinic was assigned to analyze the problem and make recommendations. This was the first of a series of similar studies. A summary of this study is included here because the findings and subsequent results make a striking illustration of the various points discussed in this paper.

The general problem as presented to us by supervision and counselors was essentially this: The cowling section was admittedly the "toughest spot" in that plant. It required constant, unrelieved riveting and bucking with flush rivets on compound curves. In the previous three months, the output per worker had been stepped up three or four times. Since then girls had been terminating and transferring faster than they could be replaced, usually giving physical reasons for leaving.

The study was begun by explaining to the day-shift group of 23 girls who had worked in this section that they, and they alone, had certain information which could help to improve working conditions for women. We asked for this information on a purely voluntary basis and emphasized that it would be used only by the medical department for research purposes and would never in any way jeopardize a girl's position with the company.

After a day's observation of the work, I interviewed at length each of the 23 girls. First, a job history was taken to get a well rounded picture of the type of work the girl had done and how long had been her experience on this particular job. This was followed by a careful history of exact physical complaints and time of their occurrence. Next, each girl was encouraged to tell everything good or bad about the job, all the little things she found hazardous or tiring, exactly how they had affected her and what she would like to see done about them. When all spontaneous comment was finished, I asked a few direct questions about the work, family problems, or relations with the boss, being very cautious to avoid the use of leading questions or in any other way to affect the opinions of the women. Finally, a physical examination was made in any case indicated.

The first striking fact that came out of this analysis was revealed in the job histories. Supervision had been frantic about the excessive rate of turnover in this section. Yet when actual figures were compiled we found that the average length of employment of the girls on this job was 9.6 months. The average length of *total* employment of *all* women in that plant was 5.1 months. In other words, the rate of turnover on this supposed "killer" job was only about half as rapid as on the average job in that plant. The actual problem, then, was not so much how to keep girls on that job, but rather how to find replacements for those few who left it. Replacements were difficult to find, because any one who had worked in the plant long enough to have the required skill for the job had also been there long enough to hear the gruesome tales about "what that job did to women."

We can hardly blame the girl who refused to transfer into this section when we list the seven main horrors commonly attributed to this job. They were:

1. Terrible vibration.
2. Awful hand and arm difficulties.
3. Dreadful backaches.
4. Irreparable and sterilizing damage to "female organs."
5. Incapacitating leg and foot troubles.
6. Nervous disorders.
7. Permanent deafness from the noise.

In view of such a reputation, breakdown of the individual histories and verbatim statements of the 23 girls who were, or had been, on this job is a revelation. Let us consider separately each of the prevalent rumors concerning the job.

To the off hand question, "What about the vibration of a rivet gun?" the standard reply was, "Well—they say it vibrates—but *I've* never noticed it." Two of the girls assumed there was vibration, "because that's how it works," and two were not sure if there was vibration or not.

As to the dreaded arm symptoms—10 had never had a twinge—10 had experienced mild transient soreness the first week, or occasionally for a day when working in a new position. Only three had any real arm complaints. One girl developed an epicondylitis after nine months on the job. This occurred on the day she changed to a new type of gun and, in trying to maintain her usual high speed output with a differently balanced tool, she apparently wrenched her elbow.

The second arm difficulty occurred in a girl who had a thyroid-pituitary deficiency. She was a social misfit and became abnormally attached to her partner. Shortly after supervision found it necessary to separate the two girls, she developed subjective symptoms in her right arm, which necessitated transfer to a one-handed job. She continued to have a succession of varied physical complaints thereafter, and has subsequently terminated to return to her farm home in Iowa.

The third arm case occurred in a girl who was so jittery she couldn't keep the bucking bar steady and kept spoiling rivets, which only aggravated her jitters. She had had a nervous breakdown on a clerical job six months before hiring at Lockheed. She was terrified by the factory and had accepted a production job only while waiting a promised opening in the office. She volunteered that her sore arm muscles were due to the tense way in which she held the bucking bar.

And so we see that only one serious arm injury had occurred in this group. This injury, an epicondylitis, may occur on *any* job requiring pushing or pulling, or the use of a hammer or screw driver.

The next rumor concerned dreadful backaches. The six girls who had experienced some mild or occasional backache all admitted this discomfort could easily be prevented if partners were about the same height and if they took time to adjust the jigs to the proper levels. Not a single member of the group complained of persistent or severe backache.

The worst and most generally accepted rumor of all was that if a girl stayed on cowling very long she would have "all sorts of female troubles and never be able to have babies." It was, therefore, amusing to make a diagnosis of early pregnancy in the first member of the group examined.

Of the remaining 22 girls, nine had complaints referred to the pelvis. Five of this nine gave histories of the same symptoms long before coming to work in the factory. The only four who had developed symptoms in the course of employment gave the following stories:

Girl Number 2, after 11 uneventful months in the section developed vague cramping sensations between periods. This symptom began shortly after she was warned by another employee that the work she was doing would injure her female organs.

Girl Number 16, developed right lower quadrant aching after 11 months on cowlings. This symptom was coincident with her being refused leave of absence to be married. It clearing up a month later when the leave was granted.

Girl Number 18, developed slight discomfort in the right lower quadrant. Her gynecologist said it was a minor pelvic inflammation not related to her work.

Girl Number 23, had felt under par and had been having frequent and excessive periods ever since her

baby was born. She had felt it necessary to go to work just three months postpartum. She had entered the cowling section five months postpartum. There was no apparent aggravation of her symptoms in this section, and they were not relieved when she was transferred to lighter work. She had had no medical attention since her six weeks' postpartum check-up, and her general health was probably not improved by the knowledge that her husband had been for several months involved with another woman. They all three worked in the same department and rode in the same car!

So we see that all female disorders in this group were either pre-existent or of such a nature as to be easily accounted for on bases other than the physical strain of the work.

THE incapacitating foot and leg troubles supposedly caused by this cowling job turned out to be two cases of mild varicose veins, unable to tolerate *any* standing job, and one case of painless dilatation of venules on the thighs, which worried the girl because of the poor cosmetic effect in a bathing suit.

"Nervousness" of any considerable degree was mentioned by only three of the 23 girls, two of these were beginners who volunteered that they had always been the "nervous type." Both transferred from this section within three weeks. The third girl developed nervousness after several weeks on the job, but she herself blamed the fact that her husband left for overseas at that time. After a 10-day leave of absence, she returned to the same section and has had no recurrence of this symptom. Evidently there was no tendency to develop "nervousness" after weeks or months on this job.

As to the permanent deafness rumored to arise from this work—only two of the group had noticed any ear symptoms. They had each experienced slight tinnitus and some deadening of sound for a short period after leaving work. One had been completely relieved by ear plugs. The other had not tried them.

And so we see how maligned the B-17 cowling job had been. The careful analysis of individual cases proves, I think, that the job was moderately heavy but otherwise harmless—the victim of malicious rumor.

Once we were convinced of this truth, the problem of how to find adequate replacements for the actually small turnover was simplified.

Recommendations were aimed at counteracting the bad reputation. But a well intrenched rumor directly attacked only digs deeper. The best means of attacking it is indirectly, by distracting attention from it until it dies of neglect. So with that in mind, the following recommendations were made:

1. Make this the prize riveting job, a position of merit obtainable only by the most experienced and highest paid riveters in the plant. This will stimulate a competitive spirit and put these girls in a position to be envied rather than pitied by other workers.

2. Give this group special privileges in the form of longer or more frequent rest periods.

3. Give this group special attention by providing a physiotherapist who will teach them how to *avoid unnecessary* muscle strain and how to *counteract* muscle fatigue *necessary* to the work. At the same time, the physiotherapist will be in a position to "nip in the bud" rumors of physical consequences from this work, before such rumors can gain strength enough to cause trouble.

4. As far as is practical, act upon the workers' own suggestions for improving environmental conditions in this section. Suggestions made during this survey concerned rotation of work, height of partners, better floor covering, improvement of tools, and ventilation.

The suggested program has been in effect for four months with the day shift group. They have one extra 15 minute rest period daily, during which our physiotherapist, Mrs. Ada Sergel, conducts the type of muscle training suggested. These classes are held out of doors. They are entirely optional, but not a girl misses a session.

To the pleasant astonishment of all concerned (including those of us who had insisted that a little attention goes a long way with the women) since this program was instituted, there has been *not a single physical complaint* from any member of this group—and replacements are available any time.

We are quite aware that this spectacular outcome is about 20% due to the rest periods and muscle education and 80% due to the fact that the company is interested in their welfare and is doing *something constructive* about it.

A similar program has been instituted in the same section on graveyard shift within the last month with equally encouraging results.

The swing shift of this section has been left untouched by the Women's Clinic to serve as a control. On this shift the constant complaining, frequent trips to first aid for heat treatments, and even weeping refusals to continue on that job, are serving to prove to any remaining skeptics the importance of psychogenic factors in the care of women workers.

Beryllium Oxide from Beryl

—Health Hazards Incident to Extraction—

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THE BUREAU of Industrial Hygiene of the Pennsylvania Department of Health was requested to make a study of the health hazards incident to the manufacture of beryllium oxide and its subsequent use in the production of copper-beryllium alloys. These copper-beryllium alloys are today finding important use in the manufacture of precision instruments, springs, non-sparking tools, etc.

Complying with this request, the Bureau conducted an intermittent study of the health hazards in a plant producing beryllium oxide during the months of October, November and December, 1943.

Description of Plant

AT THE TIME of the investigation a new plant for the production of beryllium oxide was nearing completion, and it was expected that it would be in operation in the immediate future.

It was the operations in the old building that were studied, however, and although the preparation of the oxide in this building was to be abandoned when the new plant began operating, it is believed that the results of this investigation may point out the causative agents of the reported illnesses at this plant.

The building investigated was a long "U" shaped one-story steel reinforced brick structure equipped with an "M" monitor roof. In the east wing of the structure were located the oxide, foundry, hot mill, melting, and scarfing departments. In the west wing, the machine shop, cold mill, die room, inspection, slitting, pickling, annealing furnaces, and rod and wire departments were situated. In the south wing were the old arc furnaces; these were moved to the new plant immediately before our investigation. The mixer used to blend the charges

for the arc furnaces was also located in this section, and it was dismantled after atmospheric samples had been collected.

The monitor roof in this building has been designed so as to permit ventilation of the plant by means of adjustable windows. In the oxide department, however, it was noted that the hinges on which these windows turn were corroded, making it almost impossible to adjust them for the varying weather conditions. Such a condition seriously hindered the natural ventilation of this department.

Since this company is engaged in the manufacture of war materials it is deemed inadvisable to make a detailed description of the processes in this plant.

Personnel Data

THE personnel director verbally reported to the investigators that this company employed 656 persons; 548 males and 108 females. Four hundred and seventy-five males and 54 females, however, were employed in the plant in actual production; the balance of the employees were assigned to the various offices and laboratories.

Absenteeism was relatively high, as indicated by a verbal report from the personnel director who stated the daily rate to average approximately 6%. Employee turnover, also, had been reported as being excessively high, averaging close to 100% per annum.

The nurse reported the employees of this establishment to be divided among the various departments approximately as follows:

Department	Number of Employees
Melting Department	72
Maintenance	66
Machine Shop	60
Oxide Department	46
Cold Mill	29
Laboratories	28
Rod and Wire	27
Arc Furnace	26
Detroit Arc Furnaces	24
Scarfing	21
Hot Mill	19
Forge	18
Shipping	15
Slitting	12
Cut-off saw	12
Inspection	12
Pickling	11
Foundry	9
Annealing Furnaces	7
Die Room	5
Carpenter Shop	5
Heat Treating	3
Pattern Shop	2

General Welfare Provisions

FOR their employees this company provides the services of three nurses, one nurse assigned to each work shift. Also a part-time physician is available at the dispensary for consultation and treatments for at least one hour a day. Pre-employment physical examinations are given all employees, and recently this examination has included chest x-ray. In addition, the Blue Cross Hospitalization Plan is in effect. Of recent origin is the establishment of vacations with pay to all wage earners in the plant.

It was learned that the company provides respirators, gloves, boots, aprons, goggles, etc., to persons engaged in the obviously hazardous occupations. It was evident to the investigator, however, that there was lacking a necessary supervision concerning the wearing and use of these protective devices.

Methods Used in the Study

IT WAS believed that the purpose of the study would be served if only those departments presenting the suspected hazards were investigated. Accordingly atmospheric samples were collected in the following departments, and the results of the subsequent analyses of these samples together with the sampling location are given in the Tables as designated below. The departments investigated included the following:

1. Oxide Department ..... Tables I and II.
2. Arc Furnace Department ..... Table III.
3. Melting Department ..... Tables IV and V.
4. Detroit Furnace Department.... Tables IV and VI.
5. Hot Mill ..... Table IV.
6. Pickling Department ..... Table VI.

Sampling Data

SAMPLES for the determination of the concentration of atmospheric contaminants were collected in a Greenburg-Smith impinger or by means of an electrostatic precipitator. With the Greenburg-Smith impinger samples were collected at the rate of one cubic foot per minute and the collected material was determined by subsequent analyses. The samples taken for the determination of the dust concentrations were collected in 95% ethyl alcohol, U.S.P. In those samples on which fluoride analyses were to be made, double distilled water was used as the collecting medium and the samples were analyzed by a modification of the method of Willard and Winter, titrating with thorium nitrate.

Wherever any fumes were encountered, the Mine Safety Appliances Company Electrostatic Precipitator was used as the collector, and this instrument was operated at a sampling rate equal to three cubic feet per minute.

Dust samples for the determination of particle size were collected by means of the Owens-Jet Dust Counter and the size of the particles was measured by the projection method.[1] The results of these particle-size measurements are listed in Table VII and the cumulative percentage distribution of the various-sized particles is shown in Table VIII.

Samples for the determination of nitrous gases which were suspected as being present in the arcing of the Detroit furnace were collected in an instrument designed by personnel of the Harrisburg Laboratory of the Pennsylvania Bureau of Industrial Hygiene. The sampling rate of this instrument was calibrated and adjusted so as to collect the air at the rate of one-half liter per minute.

The phenoldisulfonic acid method was used for the determination of nitrous oxides.

Samples of settled atmospheric dust in the oxide department were collected and analyzed for their fluoride content, and the results of the analyses are given in Table I.

TABLE I.
FLUORINE CONTENT OF SETTLED ATMOSPHERIC DUST
Oxide Department

Sample number	Location of Sampling	Per cent Fluorine	Average
93a	Roof of canopy hood at entrance to sintering furnace	13.68	13.34
93b		13.01	
94a	Roof of calcining furnaces	2.43	2.42
94b		2.41	

Discussion

THAT hazards to health attend the production of beryllium oxide at this plant becomes evident by only a cursory examination of the records of the medical cases reporting to the plant physician. An inspection of the dispensary records of the reported illnesses among workers at the plant during the month of September, 1943 (this month selected at random), indicated that 36 lost time cases reported to the plant

TABLE II.
FLUORIDE CONTENT OF ATMOSPHERIC DUST
Oxide Department

Sample number	Location of sampling	Instrument	Volume of air: Cubic feet	Volume of air: Cubic meter	Milligrams of Sodium Fluoride per ten cubic meter	Average
95 96	Ore Mill at operators position	Impinger	45	1.2744	17.9 44.7	31.3
85 86	Charging Lancaster Mixer	Impinger	45	1.2744	33.33 9.74	21.53
81 82	Briquette forming tables	Impinger	45	1.2744	..... .829	.414
83 84	Entrance to sintering furnace	Impinger	45	1.2744	4.07 4.07	8.505
112 113		Electric precipitator	45	1.2744	21.1 4.88	
87 88	General atmosphere at center of sintering furnace	Impinger	45	1.2744	3.25 7.51	5.38
97	Exit of sintering furnace	Precipitator	45	1.2744	6.87	
98	Wetting sinter pile	Precipitator	45	1.2744	20.3	
99 100	Loading of wet mill	Impinger	45	1.2744	3.25 4.07	3.66
110 111	On precipitator platform	Impinger	45	1.2744	8.31 17.06	12.68
89 90	Charging & unloading of calcining furnaces	Impinger	45	1.2744	21.95 19.51	20.73
91 92	General atmosphere in vicinity of calcining furnaces	Impinger	45	1.2744	13.8 67.5	40.6

*Fluorine calculated as Sodium Fluoride (NaF).

TABLE III.
FLUORIDE CONTENT OF ATMOSPHERIC DUST
Arc Furnace Department

Sample number	Location of sampling	Instrument	Vol. of air sampled: Cubic feet	Vol. of air sampled: Cubic meter	Milligrams of fluoride* per 10 cubic meters	Average
118 119	Old arc furnace charge mixer	Impinger	45	1.2744	.831 5.3	3.07
104 105	Charging of arc furnace	Electric precipitator	45	1.2744	.407	....
101	Tapping of furnace treatment with CuO & removal of dross	Electric precipitator	45	1.2744	5.68	....
102	Pouring of ingots	Electric precipitator	45	1.2744	2.61	....
103	Tapping of Detroit refining furnace	Electric precipitator	45	1.2744	2.43	....

*Fluorine calculated as Sodium Fluoride.

TABLE IV.
FLUORIDE CONTENT OF ATMOSPHERIC DUST
Foundry, Melting Department and Detroit Furnace Room

Sample number	Location of sampling	Instrument	Vol. of air sampled: Cubic feet	Vol. of air sampled: Cubic meter	Milligrams of fluoride* per 10 cubic meters	Average
133 134	Foundry	Impinger	45	1.2744	1.386 2.413	1.899
135 136	General atmosphere during cleaning of crucible furnace	Impinger	30	.8496	3.094 5.636	4.365
114 115	General atmosphere of melting dept.	Electric precipitator	90	2.5488	1.22 1.41	1.32
116	General atmosphere in Detroit furnace room	Electric precipitator	90	2.5488	0.619	0.619
117	Tapping of Detroit furnace	Electric precipitator	90	2.5488	0.610	0.61
120	Hot Mill	Electric precipitator	90	2.5488	0.619	0.619

*Fluorine calculated as Sodium Fluoride (NaF).

physician for treatment. Of these 36 cases, 64%, or 23 persons, were treated for dermatitis or a chest involvement and the remaining 36%, or 13 persons, were treated because of injuries incurred through accidents at work. Further, it is interesting to note that of the illnesses treated, 14 were for dermatitis and nine chest involvement.

Recent research by the U.S. Public Health Service[2] has indicated that beryllium is not toxic and not a source of ailment and that any toxicity assigned to compounds of this metal must be attributed to other elements in the compound, or to the acid radical of its salts.

The facts that employees exposed to fluorides in the plant have been and still are reporting with respiratory diseases and dermatitis and that these illnesses are more frequent than any others, indicate that the fluorides are a very likely source of the trouble.

Fluorine, which is a strong irritant, assumes an important role in the extraction of beryllium oxide from its ore and since the beryllium oxide as produced retains a certain amount of soluble fluoride as an impurity, the fluorine is to be found in many of the departments of the plant, even in the arc furnace department located in the new plant, a considerable distance from the old building.

All the mineral acids are known to be primary irritants capable of producing a dermatitis on any one if exposed for a suitable length of time and if present in a concentration sufficient to overcome the individual's resistance to the material. This fact also holds true with the salts of the mineral acids and in this instance the salts of hydrofluoric acid are encountered.

The concentration of hydrogen fluoride permissible in the air has been generally accepted and stated as three parts per million parts of air. An examination of the known physical state of hydrogen fluoride at ordinary temperatures; i.e., any temperature below 90°C, reveals that any statement of hydrogen fluoride in terms of parts per million at temperatures below 90°C is ambiguous. Hydrogen fluoride below 90°C is not the simple molecule H_1F_1 but is an associated molecule of one or several multiples of H_1F_1, sometimes stated as H_nF_n, according to Mellor.[3] According to Treadwell and Hall,[4] "The acid is bimolecular, corresponding to the formula H_2F_2 up to +40°, but above +80° it is monomolecular. Between these temperatures, both HF and H_2F_2 molecules are present. In dilute aqueous solutions, the simple molecules preponderate, but in concentrated solutions at room temperature, there is considerable H_2F_2." Durrant also supports the view that this compound is not a simple molecule at ordinary temperatures:[5] "At 100° the vapour density corresponds to the molecular formula HF; at lower temperatures hydrogen fluoride is associated, and the vapour is probably a mixture of the molecules HF and H_6F_6. In concentrated solution the acid appears to be H_2F_2." The data given in

TABLE V.
DUST CONCENTRATIONS
Foundry and Melting Department

Sample number	Location of sampling	Vol. of air sampled	Dust concentration million of particles per cu. ft.	Average
133	Foundry	45 cu. ft.	2.02	4.52
134			7.01	
135	General atmosphere during cleaning of crucible furnaces	30 cu. ft.	4.11	3.18
136			2.24	

International Critical Tables, confirm the same opinion.

Since we do not know the molecular weight of hydrogen fluoride below 90° or 100°C it is not possible to state toxic limits of hydrogen fluoride in terms of parts per million, but it is possible and correct to state it in terms of weight per unit volume of air the same as the salts of hydrofluoric acid. However, as a starting point, or as a basis for calculation, let us take 5.153 milligrams of sodium fluoride per cubic meter as a standard equivalent to three parts per million of hydrogen fluoride, if hydrogen fluoride were monomolecular.

A study of the medical record of the employees in comparison with the results of analyses of fluoride samples indicates a discrepancy in a figure such as 5.153 milligrams of sodium fluoride per cubic meter as a toxic limit for fluorides, or fluorine equivalent, and a serious doubt has arisen in our minds as to the correctness of such a standard. If we accept 5.153 milligrams of sodium fluoride per cubic meter as a standard, it becomes evident on examining the results of analyses of the atmospheric samples collected in this plant that the concentrations are, with few exceptions, well below this limit. But illnesses continue among the employees at the plant in question at the concentrations found.

TABLE VI.
OXIDES OF NITROGEN
Pickling and Furnace Rooms

Sample number	Sampling location	Vol. air liters	Mg. NO_2 per liter of air	P.P. M. of NO_2 @ 25° C.
Collected October 5-8, 1943.				
121	On platform back of Detroit furnace	19.5	0.582	310.4
122	On floor of Detroit furnace room	20	0.080	42.3
123	At the Nitric Acid bath strip pickler	20	0.296	157.2
124	Within three feet of Nitric Acid bath in pickling room	20	0.020	10.9
125	At Nitric Acid tank in pickling room	20	0.262	139.05
Collected November 29 and 30, 1943.				
143	On platform behind Detroit furnace No. 2, furnace rocking	11.3	0.019	9.4
144	On floor in front of Detroit furnace No. 2 (breaking level)	15	0.016	8.0
145	On floor (breathing level) in front of Detroit furnace (Arc Furnace Dept.) New Plant	12.23	0.020	10.2
146	At Nitric Acid pickling tank (Pickling Department)	10	0.062	31.7
Collected December 15, 16, 17, 1943.				
147	On platform behind Detroit furnace No. 1; continuous arcing	15	0.011	5.52
148	On platform behind furnace No. 1. Washed dross melted	15	0.006	3.25
149	On platform behind furnace No. 4. Machine shop cuttings	15	0.007	3.67
150	On door in front of furnace No. 1; washed dross melted	15	0.007	3.42
151	On floor in front of furnace No. 4; machine cutting melted	15	0.007	3.55
152	On platform behind No. 1 furnace. Machine cuttings melted	15	0.010	4.87
153	On platform back of furnace No. 4. Machine cuttings melted	15	0.007	3.57

TABLE VII.
DUST PARTICLE SIZE

Sample number	Sample location	Average particle size in microns		Median particle size microns
		Min.	Max.	
126	Dust in melting department	.10	1.17	.86
127	At ore mill	.62	1.11	.78
129	At calcining furnace	.28	.77	.38
130	General atmosphere of foundry	.17	.66	.32
131	At hot mill	.06	.55	.27
132	At Lancaster mixer	.09	.58	.29

The reported cases of chest involvement and irritations of the respiratory tract together with the attending dermatitis are but the immediate effect of fluoride exposure and continued exposure may lead to further difficulties.

An examination and analysis of the conclusions reported in the literature may aid in explaining this discrepancy. To quote from an older authority, Occupation and Health[7] records "Recent experiments enable a fairly accurate figure to be given for the average dose necessary to produce a fatal result; in the case of laboratory animals, 0.50 centigrams per kilo body weight given by way of the intestinal tract and 0.10 to 0.15 given intravenously would induce rapid death. Often, however, a very much smaller dose suffices."

Equivalents of the quoted units are: 0.50 centigram = 5 milligrams, 0.1 centigram = 1 milligram, and 1 kiligram = 2.20462 pounds.

According to the above quotation one milligram of sodium fluoride per kilogram of body weight introduced intravenously was fatal. An average man weighs about 150 pounds or 68 kilograms.

150 lbs./2.20462 lbs. = 68 kilograms

If a man takes the same proportionate dose as the animal, his total intake of sodium fluoride would be a dose of 68 milligrams.

68 milligrams sodium fluoride are equivalent to 30.7 mg. fluorine

A man breathes on the average one cubic meter of air per hour, or eight cubic meters during an eight-hour day.

Suppose the concentration of sodium fluoride were such that a man's intake would be 68 milligrams (30.7 mg. fluorine) during one day. Then the concentration of sodium fluoride would be 8.5 milligrams of sodium fluoride per cubic meter, equivalent to 3.84 milligrams fluorine per cubic meter, or 2.46 parts per million of fluorine, the calculated amount that may produce death.

$$\frac{68 \text{ mg. NaF}}{8 \text{ cu. m.}} = 8.5 \text{ milligrams}$$

Sample C.D. No. 92 (S.D. No. 41) was found to contain 6.759 mg. sodium fluoride (3.058 mg. fluorine) per cubic meter, or 56.072 mg. sodium fluoride (24.46 mg. fluorine) in eight cubic meters (the volume of air breathed by a man per eight-hour day).

TABLE VIII.
CUMULATIVE PERCENTAGE, PARTICLE SIZE OF DUST

Size range (microns)	Percentage of Particles less than Stated Size — Sample numbers 126	127	128	130	131	132
.0—0.49	0.0	23.32	64.12	75.83	90.57	83.33
.5—0.99	68.13	67.53	84.72	95.00	98.75	98.33
1.0—1.49	97.81	92.21	97.34	98.33	99.25	99.66
1.5—1.99	99.18	95.46	98.34	98.61	99.50	100.00
2.0—2.49	99.73	98.71	99.34	99.16	100.00	
2.5—2.99	99.73	99.36	100.00	99.44		
3.0—3.49	100.00	99.36		99.72		
3.5—3.99		99.68		100.00		
4.0—4.49		99.68				
4.5—4.99		99.68				
5.0—5.49		100.00				
5.5—5.99						
6.0—6.49						
6.5—6.99						
7.0—7.49						
7.5—7.99						
8.0—8.49						
8.5—8.99						
9.0—9.49						
9.5—9.99						
Above 10						

But this concentration approaches the amount reported to produce rapid death, if introduced intravenously.

If this total intake were spread over eight hours, the effect would be lessened, but if it were enough to produce rapid death taken all at once, it would produce serious sickness at least if spread over an exposure period of eight hours. It is possible that this high concentration is not constant for the whole day, and this circumstance may be the factor that has saved the situation.

To quote from a recently published paper,[8] "Inhaled fluorides are effectively absorbed." The inference is plain that inhalation is one of the more hazardous manners of intake.

The correlation of the analytical results obtained on fluorine samples with the results of studies reported by Willard Machle and his co-workers at the Kettering Laboratory of Applied Physiology, College of Medicine, University of Cincinnati, is very helpful in evaluating the health hazard and degree of danger from fluorides in the plant. The various papers of these workers extend over a number of years up to the present and their work seems to substantiate the results of work reported in the German literature.

In a paper entitled "The Effects of the Inhalation of Hydrogen Fluoride. II. The Response Following Exposure to Low Concentration" by Machle and Kitzmiller,[9] a number of experimental animals were used and exposed to hydrogen fluoride. The animals were exposed for six hours per day of 24 hours to a concentration of hydrogen fluoride of .0152 milligram per liter, or 15.2 milligrams per cubic meter. The first animal died at the end of 160 hours of exposure.

It would be only reasonable to believe that the exposure when animals begin to die would be equally dangerous to humans.

If a man were exposed to the concentration of .0152 milligram of hydrogen fluoride for an eight-hour day until exposed 160 hours, he would breathe 160 cubic meters of air, since the average man breathes one cubic meter of air per hour. A man's total intake of hydrogen fluoride then would be 15.2 mg. x 160 cu.m. = 2432

TABLE IX.
FLUORIDE CONTENT OF THE AIR
(Calculated as Fluorine)

Sample number	Sampling location	Fluorine mg. per Cubic feet	Fluorine mg. per Cubic meter	Sodium fluoride mg. per cu. meter
81	Briquette forming tables	0	0	0
82	Briquette forming tables	.001	.038	.084
83	Entrance to sintering furnace	.005	.184	.407
84	Entrance to sintering furnace	.005	.184	.407
85	Charging of Lancaster mixer	.043	1.508	3.333
86	Charging of Lancaster mixer	.013	.441	.975
87	General atmosphere; center of sintering furnace	.004	.147	.325
88	General atmosphere; center of sintering furnace	.009	.340	.751
89	Unloading and charging of calcining furnace	.028	.993	2.195
90	Unloading and charging of calcining furnace	.025	.883	1.951
91	General atmosphere; vicinity of calcining furnace	.018	.625	1.381
92	General atmosphere; vicinity of calcining furnace	.084	3.058	6.758
95	Ore mill (operator's position)	.023	.809	1.788
96	Ore mill (operator's position)	.057	2.023	4.471
97	Exit of sintering furnace	.009	.311	.687
98	Sinter pile and during wetting down of sand	.028	.920	2.033
99	Loading of wet mill	.004	.147	.325
100	Loading of wet mill	.005	.184	.407
101	Tapping of remelting furnace; dross removed and copper oxide added	.007	.257	.568
102	Pouring of ingots	.003	.118	.261
103	Tapping of Detroit refining furnace	.003	.110	.243
104 and 105	Charging of arc furnace	.001	.018	.040
110	On top of precipitator platform	.010	.376	.831
111	On top of precipitator platform	.022	.772	1.706
112	Entrance to sintering furnace	.027	.956	2.113
113	Entrance to sintering furnace	.006	.221	.488
114	Melting department	.002	.055	.122
115	Melting department	.002	.064	.141
116	General atmosphere, Detroit furnace room	.001	.028	.062
117	Tapping of Detroit furnaces	.001	.028	.062
118	Old arc furnace charge mixer	.001	.038	.084
119	Old arc furnace charge mixer	.007	.240	.530
120	Rolling of hot billets	.001	.028	.062
133	General atmosphere near molders	.002	.063	.139
134	General atmosphere near core maker	.003	.109	.241
135	General atmosphere of melting dept. during cleaning out of furnaces	.004	.140	.309
136	General atmosphere of melting dept. during cleaning out of furnaces	.007	.255	.564

		Per cent F.	Average per cent F.
*93a	Air settled dust drom canopy hood at entrance to sintering furnace	13.68	13.34
*93b	(Duplicate sample)	13.01	
*94a	Air settled dust from ledges of calcining furnaces	2.43	2.42
*94b	(Duplicate sample)	2.41	

*0.5 g. sample of dust settled out of the air in each of (a) and (b) portions.

mg. of hydrogen fluoride, and 160 hrs./8 hrs. = 20 days' total exposure.

A man's daily intake then would be 2432 mg./20 days = 121.6 mg. hydrogen fluoride.

It is reasonable to believe that the effect would be less if the total dose were spread out over a longer period of time. For purposes of illustration let us assume that the above total intake of 2432 mg. of hydrogen fluoride was spread over one year of 312 working days, instead of 20 days. Then 2432 mg./312 days = 7.79 mg. hydrogen fluoride (equivalent to 16.359 mg. NaF, or 7.40 mg. fluorine) daily intake. Again in 312 working days of eight hours a man would breathe 312 x 8 = 2496 cu.m. of air, and the concentration of hydrogen fluoride would be 2432 mg. /2496 cu.m. = 0.974 mg. per cubic meter.

0.974 mg. hydrogen fluoride is equivalent to 0.925 mg. fluorine and to 2.045 mg. sodium fluoride per cubic meter.

For the same total intake, or dose, of hydrogen fluoride, a comparison of the daily intake of hydrogen fluoride for the extended period of one year of 7.79 mg. and the daily intake of 121.6 mg. of hydrogen fluoride for the 20-day period gives 7.79 mg./121.6 mg. = 1/15.6; i.e., the daily dose for the assumed extended period of intake is 1/16 of the dose sufficient to produce rapid death.

It is believed that a daily dose of this size is too great and would produce sickness and, after a relatively short period of exposure, injury to health.

Reference to Table IX reveals that fluorine determinations on a considerable number of samples collected in the plant are greater or of the same order of magnitude as the concentration for the assumed period of exposure above, and this as calculated is 1/16 of a dose sufficient to produce rapid death if taken all at once.

This order of magnitude is 0.97 mg. of hydrogen fluoride, equivalent to 0.92 mg. of fluorine and 2.04 mg. of sodium fluoride per cubic meter of air. It is believed this concentration is too great.

To arrive at a final conclusion another quotation from Machle and his co-workers is revealing. Machle states[9] "With a human experimental subject and a normal level of intake from dietary sources (from 0.5 to 1.5 mg. per diem), urinary excretion and fecal output equals intake within the limits of experimental error."

This conclusion is well substantiated by the experimental results, and, therefore, any fluoride intake above 1.5 mg. per day is in excess of the normal that can be handled by the human body and will evidently produce some ill effect.

Again Machle and his co-workers state,[10] "At high levels of fluoride intake and absorption, storage occurs even though there is increase in excretion. (Storage occurred when the daily fluoride absorption was 2 mg. or more.)"

It can be concluded, therefore, that any previously accepted toxic limits for fluorides are too high, and it is believed that atmospheric sodium fluoride concentrations exceeding 0.2 mg. per cubic meter should be regarded as capable of producing damage on continued exposure, for the dust deposited in the lung must be absorbed before it can be excreted. Lung irritations, however, will occur below this level.

It is, therefore, our opinion that the atmospheric concentration of sodium fluoride should be reduced to 0.2 mg. of sodium fluoride (equivalent to 0.0952 mg. hydrogen fluoride and 0.0904 mg. fluorine), or less, per cubic meter in order to prevent sickness or health injury.

Summary

A STUDY of the health hazards in a plant manufacturing alloys of beryllium was made. There was a total of 656 employees, of whom 529 were employed in production. Absenteeism was high and averaged about 6% while the labor turnover averaged close to 100% per annum.

Fifty-one and two tenths per cent, or 271, of the total number of employees engaged in production were exposed to fluorides; 6.6%, or 35, to oxides of nitrogen, and 2%, or 11, to pickling fumes.

Thirty-seven atmospheric fluoride samples were collected and analyzed for fluorine, which, calculated as sodium fluoride, averaged 0.996 milligram per cubic meter of air. Four samples were taken for dust concentration determination. In the foundry the dust concentration averaged 4.52 million particles per cubic foot of air, and the general atmosphere during cleaning of the crucible furnaces averaged 3.18 million particles per cubic foot. The average dust particle size for six samples was very small, with all particles less than 1.17 microns and many less than 0.1 micron. Sixteen samples of nitrogen oxides were collected and analyzed, and, while the results were alarming at first, with improved ventilation the concentrations found came down well within the limit of 25 parts per million. Respiratory ailments and dermatitis are most frequently reported.

Conclusions

NITROGEN oxides are generated by large arc furnaces and dangerous concentrations may be produced unless removed by exhaust ventilation.

2. Likewise nitrogen oxides are generated in nitric acid pickling vats and are liberated in dangerous concentrations.

3. Any concentration which the ambiguous three parts per million of hydrogen fluoride may represent, and its equivalent as sodium fluoride, is too high. Three parts per million of hydrogen fluoride are too high even if the molecule were H_1F_1, but since we recognize the molecule to be associated as H_nF_n below 90°C (194°F), three parts per million of associated hydrogen fluoride raise the toxic limit from one to an indefinite number when calculated in terms of sodium fluoride.

4. The sodium fluoride equivalent to the average of all atmospheric fluorine determinations was 0.996 milligram per cubic meter, but at the concentrations which gave this average, cases of respiratory ailments and dermatitis reported in greatest number.

5. To reduce absenteeism and large labor turnover, and to prevent sickness, respiratory ailments and dermatitis the concentration should be reduced to 0.2 milligram, or less, of sodium fluoride (or its equivalent of other fluorides) per cubic meter.

Bibliography

1. BROWN, C. E., and YANT, W. P.: The microprojector for determining particle size distribution and number concentration of atmospheric dust. Report of Investigation No. 3289. U. S. Bureau of Mines.

2. HYSLOP, F., and PALMES, E. D., et al.: The Toxicology of Beryllium, U. S. Public Health Service, Bulletin No. 181, 1943.

3. MELLOR, J. W.: A Comprehensive Treatise on Inorganic and Theoretical Chemistry, 2:129, 1922 ed.

4. TREADWELL and HALL: Analytical Chemistry, 1:435, 1937 ed.

5. DURRANT, P. J.: General and Physical Chemistry. Longman's, Green & Co., 1939, p. 490.

6. International Critical Tables: 7:232.

7. Occupation and Health, 1:791, Geneva, 1930.

8. MACHLE, WILLARD, and LARGENT, E. J.: The Absorption and Excretion of Fluoride. II. The Metabolism at High Levels of Intake. *J. Ind. Hyg. & Toxicol.*, 25:3, 112-123, 1943.

9. MACHLE and KITZMILLER: The Effects of the Inhalation of Hydrogen Fluoride. II. The Response Following Exposure to Low Concentration. *J. Ind. Hyg. & Toxicol.*, 17:5, 223, 1935.

10. MACHLE, WILLARD, SCOTT, E. W., and LARGENT, E. J.: The Metabolism of Fluoride. *Industrial Medicine*, 11:6, pp. 288-89, 1942.

The Industrial Physician's Opportunity to Advance Medical Knowledge

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MANY physicians new to industry are being employed to care for the expanding personnel of war production. Many more physicians will be employed as the value of medical service in industry is more generally understood and appreciated. This paper is prepared with the purpose of calling the attention of these men to the opportunity that is theirs as they take up and develop their practice in the industrial medical field.

We will assume that the principal function of the industrial physician is to keep the plant employees in positive and vigorous health. If this is true, his will be the opportunity to apply the principles of preventive medicine to personal and environmental health in one of the largest and most productive groups in the community. He will have the opportunity to observe closely the development of disease in adults and to see the indications of ill health at an early stage.

The laity is more interested in the practice of preventive medicine than is the physician. One thing holding the physician back on this subject is the lack of an adequate plan for paying for such services. This factor does not enter into industrial medicine since some plan for medical costs has already been worked out and is in operation.

As a general introduction to this paper some sentences in an address delivered by Dr. Walter B. Cannon,[1] at the celebration of the fiftieth anniversary of the founding of Stanford University serve admirably. I quote:

"As a means of obtaining further information regarding human faculties methods of assaying organic efficiency are needed. If medical investigators should invent methods for learning how human experiences affect the fundamental factors which determine homeostasis, a broad territory for medical exploration would be disclosed. The physician, for example, could learn how steady are the steady states and where the critical stress is found, not only in supposedly normal individuals, but also in individuals at various developmental epochs and during disorders. In an illuminating series of tests the abilities of the same individual could be followed in childhood and adolescence, in adulthood and old age, as affected by the demands of school or the exacting periods of puberty and the climacteric, by prolonged labor, fatigue, high altitude, different sorts of training, insomnia, worry and dissipation."

And to quote from Dr. Anton J. Carlson's address,[2] delivered before the students and faculty of Washington University School of Medicine:

"I should say that our present conception of disease is fairly adequate. But it is still provisional. It is far more adequate than our conception of health, because our conception of health is essentially the absence of clinically recognizable disease, and we all know that starting out with the reserves with large factors of safety, with great capacity for regeneration in many tissues, we may sustain a great deal of damage before recognizable disease appears."

And a later sentence in that address:

"We must not wait for the time when the reserves are so depleted and the person is so sick that he comes to us."

The industrial physician has the opportunity to invent and test out new techniques for discerning deviations from the normal in man often long before the man himself is aware of trouble. Some progress has been made along these lines. The techniques that have been developed should be more widely tried and proved and newer types should be sought.

THE Foulger diastolic pressure-pulse rate scoring technique[3] is finding wider and wider use. This is a development in early diagnostic technique developed by physicians in industrial practice that might be applied to individuals. If hard-headed business men find it pays to have physicians spend their time in checking each employee in hazardous industries every few weeks with this method, should not one suppose it might be of value in the general industrial medical program and in the periodic health examination of the progressive practicing physician?

The electro-encephalogram shows wave patterns in many relatives of petit mal cases[4, 5] which would indicate that many apparently well people are not far from the clinical case. A test of this kind might be of value in pre-placement examinations for certain occupations. The electro-encephalogram is now being used not only in relationship to grand and petit mal but also to locate brain tumors and abscesses.

The electro-encephalogram subject was brought up here to introduce a discussion of the possibility of physio-electric tests which might be developed to give early indications of developing trouble in the human body. The electrocardiogram is an aid in certain organic heart lesions. Might we not find some delicate tests which might indicate the tonus of the heart muscles showing degrees of fatigue or wear? Or should not it be possible to work out tests on the body or on the body tissues or fluids which would react differently before and after exposure to toxic chemicals?

THE swing shift needs the scrutiny of the medical investigator. Physiologists teach and at times prove to their students by actual experiment that there is a normal range in temperature of about one degree Centigrade in each 24 hours,[6] with the low point in the early morning and the high point about 12 hours later.

By shifting from day work to night work, in a short time, varying with different individuals, this temperature pattern in the majority of people will reverse the high and low periods. If there is this physiological shift to adjust to changed working hours, then would not it be wise to employ personnel for definite shifts; or if the shifts must rotate then keep the employees on each shift a much longer period than the present once a week shift? This question deserves some real study by medical men, for here industry is running contrary to known normal physiological processes.

ANOTHER problem the industrial physician should not only work on but should also be able to make a contribution in is nutrition. The industrial workers, especially those on the swing shift, those long distances from home, and those in very congested defense areas have great difficulty in getting proper meals at the right time. Many physicians in industry have realized the importance of this problem and have put forth much energy in trying to solve it. They have

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insisted on a better cafeteria and better food, have tried to educate the employees on the importance of well balanced meals, and have even in many cases tried to educate the housewives of the plant personnel in buying and preparing food for the working population. Attractive nutritional posters have been used around through the plant, special lecturers have been brought in to speak on the right kinds and proper amount of food. Some physicians have been very alert in educating, through personal interviews, the individual workers in eating and sleeping habits, especially those on the swing shift who seem to have their appetites thrown off because of their work schedule.

ONE other field that should be very fruitful in prevention, which lies begging for attention from the industrial physician, is that of fortifying certain tissues and tissue processes against toxic agents. Good examples of this are the very reduced liver damage from carbon tetrachloride[7] by the previous administration of liver extract, and the protective action of sulfanilamide against hepatic damage from chloroform inhalation.[8] Another problem in this field, worked out on rats with successful results, is complete absence of symptoms of trinitrotoluene poisoning when rats were fed trinitrotoluene with a high protein diet, mild toxic symptoms on a high carbohydrate diet, and severe symptoms and pathologic lesions on a high fat diet. While it is not possible to relate these results on rats directly to man, it certainly points the way to a possible reduction in the toxic hazard by a proper control of the diet in this particular toxic process. It was suggested in the last World War that the absence of cases of severe poisoning from TNT in certain instances appeared to be from the good quality of the diet provided. Carbon disulfide poisoning can be mentioned here. There is evidence to support the belief that an adequate diet reduces the chances for harmful results from exposure to carbon disulfide gas. Several writers have thought that the factor in the diet most influential in this protection was thiamine or vitamin B_1. One industrial physician, with whom carbon disulfide poisoning has been a problem,[9] has been able to keep men working longer without harmful effects in exposure areas by the use of intravenous injections of thiamine hydrochloride.

More recently it has been learned that workmen exposed to certain toxic chemicals like naphthylamine can be protected in considerable measure by taking relatively large doses of vitamin C.[10]

The whole field of functional disease spreads out before the industrial physician. Since functional conditions are very annoying to the person having them but generally allow him to keep on working, the industrial physician will have many complaints for which he cannot find an adequate explanation. Might it not be possible that at least some of these functional conditions are due to a deficiency, either in the diet or in the person's endocrine system?

Summary

THIS paper first emphasizes the need for more knowledge of early deviation of physiological processes, and, second, some techniques now available to assist in finding deviations from the normal. Third, it calls attention to the need for finding new techniques to detect such deviations. Fourth, it considers the fortification of the body tissues against toxicological hazards by chemicals and foods. And fifth, it suggests the possibility that some of our now so-called functional diseases might be deficiency conditions.

References

1. CANNON, W. B.: Problems Confronting Medical Investigators. *Science*, 94: 171, 1941.
2. CARLSON, A. J.: Our Present Concepts of Health and Disease: Are They Adequate? *J. A. M. A.*, 117: 1475, 1941.
3. WAMPLER, F. J.: The Principles and Practice of Industrial Medicine, chapter 13. The Williams & Wilkins Company, Baltimore, 1943.
4. LENNOX, W. G., GIBBS, F. A., and GIBBS, E. L.: Effect on the Electro-encephalogram of Drugs and Conditions Which Influence Seizures, *Arch. Neurol. & Psych.*, 36: 1236, 1936.
5. LENNOX, W. G.: Epilepsy: Newer Methods of Investigation and Treatment. *J. Lab. & Clin. Med.*, 26: Part I, 232, 1940-41.
6. KLEITMAN, NATHANIEL: Sleep and Wakefulness, University of Chicago Press, 1939.
7. FORBES, J. C., et al.: A Liver Preparation Protective against Necrosis from Chloroform or Carbon Tetrachloride Administration. *J. Pharmacol. & Exper. Therap.*, 58: 4, 1936.
8. LEACH, B. E., and FORBES, J. C.: Sulfonomide Drugs as Protective Agents against Carbon Tetrachloride Poisoning. *Proc. Soc. Exper. Biol. & Med.*, 48: 361, 1941.
9. WEAVER, W. L.: Personal communication.
10. COWGILL, G. R.: The Use of Vitamins in Industry. *Connecticut Industry*, January, 1944.

Discussion

DR. T. LYLE HAZLETT: DR. WAMPLER'S remarks are not only appropriate but are also exceedingly well timed. Industrial medicine has now entered upon a phase of progress in which its development will be highly accelerated and unusually challenging. It is therefore pertinent that those within the field of industry and those who contemplate a career in it, should be aware of the opportunities and the possibilities for service which are before them. We can accept without question that the maintenance of health is the first responsibility of the industrial physician. It is likewise true that the purely preventive aspect of medical work has not always been accomplished with the skill and effectiveness which so often characterize clinical therapy. Of course it must be remembered that every physician worthy of the name has not been altogether oblivious to his responsibilities in the prevention of disease. And it must, moreover, be admitted that he has actually functioned in this respect with more success than is generally claimed for him. The inevitable health education which is a part of clinical practice, the varied procedures of immunization, and the skilled care of disease all have their preventive phases so that, to a great extent, it may be considered more academic than real to claim a distinct separation between ordinary clinical medicine and so-called preventive medicine. However, I agree entirely with DR. WAMPLER'S implication that the strongest possible emphasis must be given continually to the possibilities of prevention.

Whether the industrial physician will have the opportunity to study the genesis and the course of adult disease will depend upon the conditions under which he works as well as upon his training and his interests. In the large volume of work ordinarily done in industrial practice, the deliberate clinical study of the apparently healthy individual and of disease is more frequently a hoped for ideal than a practical possibility. One thing, however, suggested to me by DR. WAMPLER'S remarks is that the industrial physician must truly be a student of disease inasmuch as he is frequently called upon to make a ready appraisal and a ready disposition of cases of illness.

I concur wholeheartedly in the use of every objective means of measurement in our study of the health status of industrial workers. Certainly the electrocardiogram has proved its worth repeatedly, although it has not replaced clinical observation and clinical judgment. From a study of some 3,000 supervisors receiving a yearly cardiovascular appraisal much information is being secured that I feel may change our thinking very much of the ability of cardiac cases to work. Perhaps, less can be said at the moment concerning the electro-encephalogram although it may well become a means for the refinement of physical examinations in industry. It would appear that for the present its use in selected cases might do more to encourage its proper use in the future than would its present promiscuous and uncritical utilization.

Problems of toxicology, of nutrition, of disturbed habit patterns, and of the functional diseases will continue to be with us for some time. To be sure, some of them have received extensive study which has resulted in much

needed improvement both of theory and of practice. The great advance that has been made in industrial nutrition is generally known and requires no comment here. I should, however, like to emphasize the fact that this advance can scarcely be considered to have been a gradual one extending over a long period of years. It was a phenomenally rapid progress which forced the application of the science of nutrition to the demands of industrial feeding under the strenuous conditions of a war economy. The good that has come of it is with us and will continue to improve the public health long after the emergency has passed.

DR. WAMPLER refers to the perplexing questions of the swing shift schedule. Both the physiological and psychological problems of the swing shift must be more definitely considered if the efficiency and the happiness of the workers involved are to be maintained. What the ultimate solution to this vexing question may be we cannot at present determine. The domestic and the social dislocations present difficulties that have as yet defied solution. But it is worthy of mention that the problems entailed are under study, that some improvement has already been made, and that more may be expected.

The toxicological questions which have been mentioned by DR. WAMPLER typify the interest and the effort which exist for the protection of the worker from the effects of noxious substances. The relation of diet to the effects of exposure, the studies involving the use of vitamins, and other observations are of great interest to the toxicologist and may be of great future value in prophylaxis.

I should like to take the liberty of adding one other opportunity among those which have been discussed. That is, the opportunity of the industrial physician to promulgate the basic ideas of physical and mental health. Part of the function of the industrial physician must be an educational one, but beyond the casual imparting of knowledge there should be a developed program utilizing every feasible and effective educational approach to teach the worker how to maintain the health of his body and the well-being of his mind. In some industrial medical departments this effort is being made. It promises to be one of the developing phases of our work.

Unquestionably the opportunities afforded for professional development are many in the growing field of industrial medicine. Whether these opportunities will be exploited to the full will depend on the selection of men whose background will permit such exploitation. But in addition it will depend also on making available to the industrial physician the instruments and the time which this progress demands. This is a responsibility of management, who must be made aware of the importance and the necessity for it in our present day industrial life. We are indebted to DR. WAMPLER for having pointed out some of the possibilities; we hope the future will see a continuation of the rapid advancement of the past few years.

Demobilization and Readjustment of Veterans

COLONEL JOHN N. ANDREWS,
National Selective Service System,
Washington, D. C.

IT IS A PLEASURE to be with you today and to discuss some of the problems of mutual interest as they relate especially to the readjustment of veterans. Something like 1,200,000 of these servicemen have already returned to civilian life since September, 1940, and the number now returning each month is likely to increase. It is good to know that organizations such as the AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS are taking an active interest in working out plans by which our soldiers and sailors can be quickly readjusted in civilian life.

Your Association has in its membership many of the most prominent physicians and surgeons in this country, who will be in position, because of your professional and industrial connections, to render very significant service to our returning veterans. I understand that in your three-day conference here in St. Louis, a considerable portion of your time will be focused on problems relating to the care and readjustment of the servicemen.

As we talk about the problem of readjusting the veterans, we must not lose sight of the fact that the war has yet to be won. Our great battles are yet ahead of us, and no one at this time can predict with any degree of accuracy when the war in Europe or in the Pacific may come to an end. Until the war is won, the spotlight must be focused on the process of building, training and equipping our armed forces. Nothing can be allowed to detract from the concentration of national energy necessary to win a complete victory over the enemy at the earliest possible moment. Likewise, the army of production must take its place along with the armed forces in this concentrated effort. Nevertheless, as we recruit and train a powerful Army and Navy, and as our production schedules go forward without interruption, a knowledge of their relative and absolute magnitude requires that, behind the scenes, serious thought be given to the problem of returning the servicemen and industrial workers to peacetime activities.

The same necessity existed in the first World War. Study of the problem of demobilization of the members of the armed forces was not begun until a month before the end of the war, and then the need for haste resulted in mistakes that might have been avoided under more leisurely and systematic planning. In the same way, no comprehensive program was adopted for the effective transfer of the industrial workers to peacetime production. There will, of course, develop many problems which cannot be anticipated during the progress of the war, and some mistakes will no doubt occur as careful plans are laid for the demobilization of the armed forces at the end of this war. Furthermore, the task which will confront us this time will probably be three times as great as it was in 1918-1919. In the first place, the numbers involved will be at least three times those of the first World War. In the second place, the men in the armed forces will have been away from their jobs, their families, and schools much longer this time than was the case in 1918.

In the third place, the 20 million or more war workers who will need readjustment at the end of this war will be far greater than the number of such persons at the end of the other war.

The method finally adopted for demobilization in 1918 was the traditional plan of demobilization by military organization or unit. Reports indicate that the military authorities favored this plan and it was the only one for which regulations and administrative procedures could be quickly developed at so late a date. In carrying out this unit plan of demobilization, entire regiments, and sometimes divisions, were demobilized in a few days. The speed was so great that time did not permit the consideration of the dependency status of the men, whether or not they had jobs to which they might return, and no questions were asked as to whether the men wished to enter school or engage in business. As a result of this hasty demobilization, the record indicates that by June, 1919, about 2,700,000 soldiers, or nearly two-thirds of the total wartime strength of the Army, had been demobilized. With such a hasty demobilization, it is not

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surprising that many unemployment and other problems of dislocation arose.

The details of the present planning for demobilization at the end of this war cannot be made public now, and possibly not until the end of the war, but assurance can be given that extensive and very careful consideration has been given to this problem for several months and continuous study of the problem will be made during the progress of the war. Until the war ends and the peace terms are known, it is impossible to forecast with any degree of accuracy the possible size or components of the armed forces in the postwar period, and this problem alone makes it difficult to know at what rate the armed forces can be demobilized after the war is won. With these several problems in mind, the civilian population will have to content itself with the assurance that the several branches of the armed forces will be prepared to meet the situation and will have adequate plans ready when the war is finally won. In addition to the planning being done to readjust the veterans when they are no longer needed in the armed forces, I can also assure you that careful studies are being made as to what the possible strength and components of the several branches of the armed forces should be in the postwar period.

When the war ends, those men and women who have been in service will find several opportunities awaiting them. Some will probably decide to remain in the service, and there will be good opportunities for a considerable number. Large numbers of the younger men and women especially will probably wish to resume their education, and extensive plans are being made to provide education and training opportunities for them. Several bills now pending in Congress would provide liberal subsidies for those who wish to resume their education or training. Some of the state legislatures have already passed legislation providing opportunities for the men and women who went from those states to the service and who will later wish to re-enter school or college. Thousands of the ex-servicemen will resume their old jobs, and employers have already demonstrated the fact that they will be very liberal in restoring their former employees to their old positions. In many instances steps have already been taken by these employers to provide even better jobs, if possible, for the men than they held at the time they entered the service. Estimates suggest that from three to four million men and women who will have served in the armed forces will never have held permanent jobs. This group will constitute an especial problem for the nation at large and for the industrial, business and labor leaders especially. A considerable number of veterans will need hospitalization and rehabilitation before they can be returned to gainful employment. The Veterans Administration, under the able leadership of Brigadier General Frank T. Hines, is authorized under Public Law 16 to provide hospitalization and rehabilitation for the veterans who have service-connected disabilities and who meet certain requirements.

EMPLOYMENT is a final goal of the vocational rehabilitation program of the Veterans Administration. Veterans eligible for vocational rehabilitation must have met the following requirements:

(a) Active military or naval service after December 6, 1941, and during the present war.

(b) Honorable discharge from active service.

(c) A disability incurred in or aggravated by such service for which pension is payable under laws administered by the Veterans Administration, or would be but for the receipt of retirement pay.

(d) A need for vocational rehabilitation to overcome the handicap of such disability.

Maintenance and support during training and for two months after employability has been determined will be provided through increased pension. A single person will receive a pension at the rate of $80 a month, a married person $90 a month, with $5 a month for each dependent child and an additional allotment in the amount of $10 for each dependent parent. In addition to these amounts payments by employer-trainers to veterans during training-on-the-job are authorized to be made in accordance with certain principles designed to preserve a balance between the amounts which may be paid a claimant during training and those which he may receive in employment after being trained. Loans not exceeding $100 may be made to trainees commencing or undertaking rehabilitation.

Institutional training is generally provided in an institution in or near the veteran's home community. Tuition, books, supplies and other incidentals are furnished in institutional training and all equipment and supplies required are provided in train-on-the-job. No course of instruction can exceed four years in length nor shall any training under this legislation be afforded beyond six years after termination of the war.

When the war ends, some 15,000,000 veterans will have the right to be hospitalized by the Veterans Administration when beds are available. At present, the Veterans Administration has 66,305 hospital beds in its 93 facilities, and is utilizing 2,859 beds in other government and contract hospitals, a total of 69,164. This number will be increased to approximately 87,000 under presently approved or contemplated construction programs.

In addition, the Veterans Administration had space for 17,464 beds for domiciliary or home care, of which 9,466 were occupied on November 4, 1943. Eliminating from the hospital beds currently available the 4,211 beds in neuropsychiatric facilities that have been authorized solely as an emergency measure, the Veterans Administration will have under present plans some 100,000 beds of all types.

It has been estimated that 300,000 beds will be needed to enable veterans of this war to receive hospital and domiciliary care to the same extent as provided for veterans of earlier wars.

However, this estimated maximum should not be required until long after the war or necessitate the eventual additional construction of more than 100,000 beds, since there will be under present plans 100,000 beds in Veterans Administration facilities, and it should be possible to obtain at least that number from the Army and Navy shortly after the war terminates and these agencies have completed their medical and surgical treatment of the wounded.

Lieutenant General Brehon B. Somervell, Commanding General of the Army Service Forces, in speaking at the dedication ceremonies of the Thomas W. England General Hospital at Atlantic City on April 28, gave assurance that there would be hospital facilities available for those veterans who need them. He directed that this promise be made to the families of American servicemen:

"No matter how severe the fighting, no matter how high our list of wounded, there will be a bed available for every man hurt in his country's service. These hospitals are in operation now. They have enough beds to care for the total number of wounded anticipated in the coming campaign. There will be a sufficient number of nurses to care for every wounded man. These hospitals will be adequately staffed. They

will be furnished with the very latest proved surgical equipment."

Although our battle casualties are still less than half of those experienced in the last war, we are already making payments on account of disability and death and maturity of National Service Life Insurance policies at a rate in excess of $32,000,000 a year on account of the present war.

The amount of disability pension ordinarily payable ranges from $10 to $100 monthly in multiples of 10, depending upon the degree of disability; i.e., 10%, $10 a month; 20%, $20 a month, etc., to 100%, $100 a month. No man is pensionable whose disability is less than 10%. If a veteran is 100% disabled and needs aid and attendance, he is entitled to $150.

The percentage of disability is determined by a Rating Board consisting of a medical specialist, a legal specialist and an occupational specialist. The Board rates the disability, assisted by other personnel consisting of clerks and stenographers. The percentage of disability is based upon the average degree of impairment in earning capacity, so that there may be no penalty on any individual for his ability to overcome the handicap caused by his disability.

Definite sums have been provided for certain specific disabilities, and these payments are in addition to the sums payable for the percentage rating of the disability. For example, a man who loses an eye or a leg or an arm receives $35 for this loss. In addition, he receives a payment based upon the percentage of such disability, which can run from 40% to 90%. In the case of an arm or a leg, this rating would depend on how low or how high the amputation occurred. An example would be a man who lost his leg at the knee joint. For this he would receive the flat $35. In addition he would receive a 60% disability rating, or $60 a month, which added to his $35 would give him a monthly pension of $95.

Other specific disability sums are provided for more serious injuries. These do not include a percentage disability rating, but are total payments. These are: Loss of two arms, $150; loss of one leg and one arm, $150; loss of two legs and one arm, $175; loss of two legs and two arms, $250; loss of any two extremities plus eyes, $250; loss of two arms, two legs and one eye, $250; loss of two arms, two legs and two eyes, $250. Loss of "use" is considered the same as "loss," in specific disability payments.

Should a man lose his life in line of duty in the Armed forces, his designated next of kin will receive from the Army or Navy a cash sum of money equal to six months of his pay.

In addition to this, his dependents will receive monthly pensions from the Veterans Administration. The rates for these dependency pensions are:

A wife will receive $50 a month, and if there is one child, $15 additional—with $13 for each additional child, with a limit of $100 a month for wife and children.

If no wife survives, $25 a month will be paid to the first child; $38 for two children, equally divided, and $10 for each additional child.

In addition to these sums for wife and children, a dependent parent will receive $45 a month. If both parents are dependent, each will receive $25 monthly.

The Vocational Rehabilitation Division of the Federal Security Agency, under the direction of Mr. Michael J. Shortley, is authorized under Public Law 113 to provide vocational rehabilitation and training to civilians and veterans alike who meet certain requirements and who are in need of such vocational rehabilitation and training. This latter program will provide opportunities for the handicapped and other civilian non-veteran workers to be retrained. This program will also be open to the disabled veterans if they desire certain short courses of training or if their disabilities and vocational handicaps do not meet the requirements of Public Law 16.

OF THE MORE than 1,200,000 men and women already discharged or released from active service, a relatively small proportion have been battle casualties, but this percentage will increase as the fighting is intensified and as our participation in it is extended to wider battle fronts. The prospect of hundreds of thousands of such war-disabled constitutes one of the most appealing social challenges ever presented to the leaders of industry, labor, business, government, social agencies, educators or the medical profession.

The rehabilitation program of the Veterans Administration is not only a means of enabling individuals to earn their living, but a means of social participation, self-respect, and that individual integrity which is the right of every member of society, and which even to a fuller extent is the right of those who bear service-incurred disabilities. These men, perhaps more than any others, will need to live as normal a life as possible and it is our obligation to do everything in our power to help them achieve such a life.

After the rehabilitation process, these veterans in most cases will be as employable as the average worker, if not more employable. While most workers drift into employment, rehabilitated veterans will go into employment after considered and tested advisement. The rehabilitated veteran will be suitable to the occupation for which he is trained. He will be hand-picked and hand-fashioned for the job by experts instead of by luck or unguided training. The men who are placed in such industry for training will be placed there, of course, on approval and they will be trained for specific occupations in a plant or business. Standards will be set up, but those industries which participate in this program of rehabilitation will, I am sure, be glad to meet these standards.

In considering the general readjustment of the returning servicemen, we should bear in mind certain facts concerning them. The men in our armed forces are among the healthiest and most normal of our American manhood. Their educational level is high. Fourteen per cent of the Army of World War II are college men; 53% have some high school education, and of these almost one-half are graduates. Only a third of the men are in the grade school level, as compared with 80% in the last war.

The men in the armed forces are young men. In 1943, 53% in the Army were under 25 years of age; 80% were under 30. Consequently, the great majority of the veterans will still be in their 20's when they return to civilian life. At least a third of them will have had no vocational experience except that acquired in the armed forces. This is due to the fact that this number entered the armed forces directly from school. Only about 20% were out of school more than three years before they were inducted, and large numbers of these had not acquired a permanent employment status at the time they entered the Army or the Navy. A majority, therefore, will have had, at the most, only one or two short work experiences. However, this lack of civilian vocational training will be counterbalanced by the vast amount of technical training these men have received while in service.

From such men as these will come the handicapped veterans. If we may judge by the experience with the 125,000 disabled veterans placed after the last war by

the Veterans Administration, they will be characterized by an intense desire to fit themselves into suitable employment and will gladly undergo the necessary training to attain their occupational objectives.

The problem of finding suitable employment for the handicapped will be a difficult one. In the last two or three years, however, employers all over the country have had opportunities to try out various kinds of handicapped workers. Some of these have been returned veterans, others have been handicapped civilian workers. These handicapped workers, both veterans and non-veterans, have had opportunity to show what they can do, and most of them have demonstrated beyond any question of a doubt the fact that, if properly placed, they can render very important services of many different kinds. The *Monthly Labor Review* of September, 1943, states that "Experience has shown that such persons, properly placed in industry, may equal or exceed in productiveness the unhandicapped." A few years ago it was thought that they would add to the difficulties of the employer; that there would be a high rate of absenteeism; that they would not carry their share of the load; that they would not reach production standards; and that they would show a much higher rate for accidents. None of these things has proved true. Recent studies indicate that the accident rate is generally lower among the handicapped workers than among the normal workers.

INDUSTRY has already put itself on record with respect to the efficiency of the handicapped. Companies which were first moved by altruism found that they themselves were the beneficiaries in hiring handicapped individuals. Remington Arms, of Bridgeport, Connecticut, in a letter concerning a blind worker placed with this organization by the State Board of Education of the Blind, writes as follows:

"We are grateful to you for giving us the opportunity of performing what was thought to be a service to your organization but which has proved to be one to our own instead."

The Connecticut Telephone and Electric Company states in a letter concerning a blind worker, "There are few of our employees who spread more happiness and inspire others to greater war production."

A firm in Minneapolis whose payroll includes 60% disabled workers writes, "This firm is not running a curative institution nor is any attention directed toward giving workers tasks which will restore their disabilities. Work accidents are practically unknown and labor turnover is at zero. The average time the workers have been with the company is 15 years."

The International Business Machines has had unusual success in the placement and utilization of many different kinds of handicapped workers. This organization has in its international headquarters in New York City a blind worker who is responsible for the recruitment, training and placement of blind workers, and he also has the responsibility of aiding the recruitment, training and placement of other handicapped workers.

Many of our large corporations have had for many years well-defined policies and programs relating to the employment of the physically handicapped. The Ford Motor Company, according to recent estimates, employs over 11,000 persons having some form of physical disability. Twelve hundred of these are blind. In one of its large factories, about 10% of the men employed are handicapped in some way. Concerning these, the late Edsel Ford wrote as follows:

"No company regards such employment as charity or altruism. All our handicapped workers give full value for the wages, and their tasks are carried out with absolutely no allowances or special considerations. Our real assistance to them has been merely the discovery of tasks which would develop their usefulness."

On November 19, 1943, the officials of General Motors Corporation addressed a communication to all of its general managers and personnel directors. The subject of the communication was "Rehabilitation of Employees Returning from Military Service." In the letter of transmittal and the instructions to the managers and personnel directors of this large corporation, several significant statements are made, a few of which are quoted below:

"More than 82,000 General Motors employees are in military service and more are going every day. Already, some of these men are returning to work in the plants after recovering from injuries received while in active service. The problems of placing disabled veterans will become increasingly serious and important throughout the period of the war and afterwards. We feel that it is not too early to make preparations to meet this situation."

"We should be liberal in our policy in rehabilitating our employees returning from Service and we should make every reasonable effort to assist them in readjusting themselves to normal plant activity. Experience has demonstrated that the handling of the more difficult cases requires unlimited patience and a high degree of ingenuity, factors which should be weighed in selecting the personnel to follow through on the program.

"It is important that a representative of the Personnel Department coordinate the activities of the medical, employment, training and supervision with respect to re-employment of veterans. The duties of the personnel representative handling veterans' rehabilitation should include:

1. Coordinate the activities of the medical department, employment department, training facilities, supervisions and others concerned with rehabilitation of disabled veterans.
2. Survey jobs in the plant from the standpoint of physical requirements to determine suitability for placement of veterans with various types of physical handicaps.
3. Assist the employment department in placing handicapped veterans on jobs they can do in keeping with the recommendations of the plant doctor.
4. Follow up the progress of handicapped veterans to see that they become acclimated to their work, are able to carry the job, and arrange for transfers where necessary.
5. Maintain contact with training facilities available for disabled veterans.
6. Maintain contact with Regional Office of Veterans Administration and the local Red Cross unit concerned with the handling of disabled veterans."

The Bethlehem Steel Company, of Allentown, Pennsylvania, reports that it has already employed more than 9,000 veterans of World War II. Of this number, approximately 4,000 were former employees of the company who were re-employed after they returned from service, and 5,000 were veterans who had never worked for this company before.

The Caterpillar Tractor Corporation, of Peoria, Illinois, has developed a program for the utilization of handicapped workers which has attracted wide attention. Perhaps in the audience here today there are representatives from this company who could give you some details of the program and the successes which have been attained in its administration. These are set forth in a very splendid manner in a publication entitled, "The Peoria Plan for Human Rehabilitation."

I HAVE mentioned only a few of the companies which are doing outstanding work in the readjustment and utilization of handicapped workers. I only wish that time permitted a further enumeration of the splendid work which is being done in a large number of the corporations, large and small, all over the country. Many of you have seen the recent report of the Industrial Hygiene Foundation of America entitled, "Putting the Disabled Veteran Back to Work." This publication covers the symposium dealing with the problems of the veterans. Further details of the two-day conference of the Industrial Hygiene Foundation of America are given in the recently published proceedings of the Eighth Annual Meeting of its members.

The problem of placing disabled veterans will become increasingly important and serious as the war goes on. We feel that it is not too early to make preparations to meet this situation. Management today seems to be agreed that every possible effort should be made to re-employ and place handicapped servicemen on jobs which they can perform successfully without danger to themselves or to fellow workers. They must be placed on jobs which they can do productively and with the greatest financial return to themselves. This means that they must do "necessary jobs." Any attempt to make a job for a handicapped man will not work out satisfactory for the man or for the company. This, of course, does not preclude the possible rearrangement of a job and a reasonable period of readjustment for the man himself.

When a handicapped man is placed successfully, he ceases to be handicapped from the standpoint of his productive ability and his earnings. There will be many employees released from the armed forces for physical reasons whose handicaps will in no way interfere with their return to their former jobs. Such cases will present no problems and will be simple to handle. There will be other cases of more serious physical handicaps which will require rehabilitation before the man can be put to work.

It is rather difficult to give specific directions as to the handling of all the problems that will arise in connection with the rehabilitation and re-employment of the returning handicapped servicemen. A great deal of this will have to be developed and worked out by experience. It requires careful thought, but it is of such importance as to deserve the very greatest consideration of every person connected with management. Each returning serviceman should be greeted and received, if possible, by an official in each plant. If the veteran has been disabled, it will probably be wise for the plants to require a physical examination before he is returned to his old job or assigned to a new position. This will be expedient from the standpoint of the veteran himself as well as from the standpoint of the employer.

Many industrial organizations have already made careful surveys in order to determine the various kinds of work to which men with physical handicaps can be adjusted. After handicapped veterans have been assigned to positions, it will be necessary for the medical authorities and the personnel department to follow up the cases to see that the handicapped veterans are placed in jobs which are in keeping with the report and recommendation of the physician of the company. It will be highly desirable to follow up the progress of handicapped veterans after they are placed, in order that any adjustment necessary may be made even if such should require the transfer of workers from one department to another or even from one plant to another.

The doctors making the examinations of handicapped veterans should outline in detail the conditions which they discover which make the employee unsuited for certain types of work, and full information should be furnished as to what type of work should be avoided in assigning the handicapped person to employment. For instance, there will be persons who should not work near fast-moving machinery; there will be others who should not do any heavy lifting; there will be still others who should work on the ground level only and not be allowed on ladders, scaffolds, or elevated platforms; and there will be some who must avoid dust, fumes, or skin irritants. Some will find it impossible to walk or stand for considerable periods of time in connection with their work. The doctor and personnel director will, on some occasions, find returning servicemen who will be unable to perform any work which they have available at a certain time, but these persons will be more in need of assistance than those who have no serious disabilities. Their mental attitudes will be important and their morale must be bolstered in every way possible. It is not enough to say to a former employee or to a veteran who has not worked for a certain company previously, merely that because he has a serious disability he cannot be restored either to his old job or hired for a new position. Every effort should be made to employ him or to give him constructive suggestions as to where he can probably find work.

After the veterans have completed various types of education, rehabilitation, and specialized training courses, they will be seeking employment. Millions of the returning servicemen will desire employment as soon as they are released from service. In studying the general problem of employment for veterans, serious thought should be given to the fact that approximately one-third of the men now in the armed forces have never had permanent employment.

Under Section 8 of the Selective Training and Service Act of 1940, as amended, the Selective Service System is charged with a dual responsibility to returning veterans:

1. To render assistance in restoring them to their former jobs.

2. To render aid in securing new positions for those who do not choose to, or cannot, be reinstated in their former positions, and for those who had no permanent employment at the time they entered the military service.

Veterans entitled to aid include all persons, male and female, who, subsequent to May 1, 1940, entered upon active service in the Army, Navy, Marine Corps or Coast Guard, whether by induction, enlistment, commission or otherwise, and who have satisfactorily completed any period of active duty or period of training and service under the Selective Training and Service Act of 1940, as amended.

The Director of Selective Service, to facilitate the discharge of his responsibilities in regard to employment and re-employment of veterans, has established a Veterans Personnel Division (formerly Re-employment Division) at National Headquarters of the Selective Service System.

The State Director of Selective Service, as authorized by the Governor, has the obligation and responsibility of organizing and supervising the program within his state. It is the responsibility of the local boards to discharge such obligations at the local level. All of the facilities of the local boards are available for the re-employment program.

Attached to each of the local boards are one or more re-employment committeemen who serve as the friends

and advisers of the veterans. These re-employment committeemen, working in cooperation with the local boards, will render any kind of employment and other assistance possible. The services of the Veterans Employment Division of the U. S. Employment Service, War Manpower Commission, will be utilized especially in finding new work opportunities for the veterans.

A veteran is entitled by law to reinstatement in his former position or to a position of like seniority, status and pay, if the following conditions exist:

1. That the position he left was not a temporary one or that he was not a temporary employee.
2. That he makes application for re-employment within 40 days after he is relieved from active service with the armed forces.
3. That he receives a certificate of satisfactory service—honorable discharge.
4. That he is still physically and mentally qualified to perform his previous work.
5. That his reinstatement will not work undue hardship on the former employer.

A veteran who is restored to a position in the employ of the Federal government or a private employer is entitled to the following additional benefits:

(a) He should be considered as having been on furlough or leave of absence during his period of service.

(b) He shall be restored without loss of seniority.

(c) He shall be entitled to participate in insurance or other benefits offered by the employer pursuant to established rules and practices relating to employees on furlough or leave of absence in effect with the employer at the time such person entered military or naval service.

(d) He shall not be discharged from such position without cause within one year after such restoration.

When a veteran is not eligible for, or does not wish to be restored in, his former position but desires a new position in private industry, he should be referred to the Veterans Employment Division, U. S. Employment Service, for assistance in securing a new position.

Many veterans upon their return from Service will be unable to fill their old jobs or any other job. They may be battle casualties; they may have service-connected or nonservice-connected disabilities; they may require rehabilitation, hospitalization, prosthetic appliances or other forms of physical care; or they may have financial problems involving benefits and allowances. Under such circumstances, the veteran should seek the assistance of the Veterans Administration or the assistance of the Vocational Rehabilitation Division of the Federal Security Agency.

It is encouraging to observe that, of the thousands of veterans already released from active service (over 1,200,000 since September 16, 1940), practically all those entitled to re-employment in their old jobs and desiring such reinstatement have been reinstated without delay. Employers generally have made liberal interpretations of the Act and have done everything possible to carry out their obligations. Where veterans, for various reasons, could not be reinstated in their old jobs, employers have made every effort to adjust them to other jobs in their plants or to help them find other work opportunities. In only one instance has it been necessary to refer a case to the United States District Attorney. When the employer of this veteran was informed that the papers were being prepared for trial, the employer agreed to reinstate the worker and paid $648 in back wages.

Employers in many instances have said they hoped to carry out not only the legal obligations of reinstating returning veterans in their old jobs, but also the moral obligations implied in the law. Such policies, followed by large and small employers, will do much to help stabilize employment and to give the veterans a feeling of security following the war. It is to be hoped that employers will re-employ returning veterans with the same enthusiasm as they have displayed their service flags.

Organized labor has been equally cooperative in helping adjust problems of seniority, wages, union dues and other factors involved in restoring veterans to their former employment and assisting them in securing new work opportunities. There is every reason to believe that this same fine cooperative spirit will continue in the postwar period.

YOU of the AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS will have an extremely important role to play in the readjustment of the returning servicemen. Many of you have already had considerable experience with these men. Your medical programs will need to be very closely integrated with the work of the personnel department and you will want to maintain close contact with supervisors, foremen, and others who are in intimate touch with the returned veterans. It will not be sufficient merely to find a job and put a man to work. He will need frequent counseling and he should be encouraged to discuss his personal and other problems freely with personnel directors and the plant physicians. After all, most of these ex-servicemen will have experienced a great deal of excitment during their period of service. Civilian life and employment generally will, at best, be much more routine and monotonous to the workers than many of their experiences have been while in service.

Constant shifts and adjustments will be necessary on the part of some of the workers, although many of them will return to the work bench, the machine, or the desk and will resume their old work without serious difficulty.

I am sure that as physicians and surgeons, personnel directors and industrial relations specialists, you are already familiar with the plans being developed by the armed services to help the men readjust to civilian life or to be returned to active service after they have had a rest or convalescent period.

The Army Air Corps has developed three Redistribution Stations, located at Atlantic City, New Jersey; Miami, Florida; and Santa Monica, California. These stations will serve primarily as reclassification centers for the officers and enlisted men who have returned from extensive overseas operations. After returning from overseas, the officers and men are given short furloughs or leaves of absence in order to visit their families, and at the end of such period they report to one of the Redistribution Stations where they have a thorough physical examination; where they are given an opportunity for intensive interviews; and where they also have additional time for recuperation and recovery from their previous arduous assignments. Following the reclassification and interviews, some of the men are sent to rest or convalescent centers for further recuperation, and those who are found to be in good physical and mental condition are given assignments commensurate with their physical abilities. Many of the men ask to be returned for overseas operations as early as possible, while some of them suggest that they would like to have a different type of assignment, at least for a period of time.

Lieutenant-Colonel Howard A. Rusk, Chief of the Convalescents Training Program, Office of the Air Surgeon, has been responsible largely for the develop-

ment of this unique program. He was a former prominent physician in St. Louis and is well-known to many of you who are attending this conference. I am sure you will watch this unusual program with much interest, and the other branches of the armed forces are studying the Air Corps program very carefully.

From the standpoint of Selective Service and the armed forces, it is encouraging to know that as a group of physicians and surgeons you are giving careful attention to your contribution in helping the veterans readjust to civilian life. The fact that you are devoting a considerable portion of your program here today to this subject is evidence of your comprehension of the nature and scope of this problem. Also, the fact that many of you, as the responsible medical officers in many large plants, have already developed an extensive program for veteran readjustment, bears further evidence of the important roles which you will play in helping the ex-servicemen return to civilian life.

Your activities and interests are greatly appreciated and we ask your continued fine cooperation.

Venereal Disease

—Report of the Committee on Venereal Diseases of the American Association of Industrial Physicians and Surgeons, Cassius H. Watson, M.D., Chairman—

THERE have been published many generalities in various of the journals with reference to the effect of venereal disease on industrial health, industrial accidents, and production while actually there is little evidence in the way of authentic figures to show that venereal disease has played an important part under any of these headings. In the clinics throughout the country and in the office services of physicians specializing in genito-urinary diseases, cases of Neisserian infection have been very prominent by their absence (probably by reason of self-diagnosis and treatment). The high degree of efficiency of certain of the sulfa drugs and the recently demonstrated effectiveness of penicillin in treating cases of acute as well as chronic anterior and posterior urethritis and uncomplicated cases of prostatitis and vesiculitis would seem soon to relegate these forms of venereal disease to the position where they will play a still further unimportant role in affecting production and general health. However, industrial medical departments, in cooperation with personnel and social service activities, should maintain record statistics under medical supervision covering the effects of venereal disease of all types on (a) lost time; (b) spoilage; (c) impaired production; (d) accident incidence; and (e) costs of treatment either direct or indirect, including hospitalization.

2. Throughout the years, the methods of education with respect to venereal disease have been carried on by well-meaning, earnestly-minded organizations, many of whose personnel only too often have had relatively little contact with the actual diseases themselves. Hence the attempts at education have lacked a needed, more realistic point of view, to an extent that such items as consequences have failed to impress the majority of patients of the need for adequate early and sustained care where infection has occurred. Publications of the social hygiene organizations need to be expanded to cover venereal disease through the emphasizing of the actual facts of the disease, the methods of infection, and the comparative value of the several items of protection from the standpoint of individual prophylaxis, both male and female. There has been, your Committee believes, too much enthusiastic publicity with respect to the effectiveness of the "sulfa" drugs in treatment of specific urethritis. This has encouraged self-medication and has resulted in a considerable number of harmful results.

3. The medical department, as a part of personnel relations, should receive from the employment office definite instructions with reference to liberality in the handling of applicants for jobs who knowingly or unknowingly with respect to their venereal infection, apply for work, and then in accord with local conditions formulate clinical standards on which to base employability of such applicants. There should also be provision made in such industrial establishments where such liberalized policy exists, for adequate care and treatment, or information concerning other sources for adequate care and treatment; and, in either instance, approved follow-up routines with reference to maintained continuity of treatment and data as to adequate follow-ups.

4. Industrial medical establishments should be arranged to qualify under a set of rules as to methods and facilities for the obtaining of approved treatment of new or old personnel infected with venereal disease:

(a) With respect to medical department methods, follow-ups, disciplinary measures, etc. (particularly as to responsibilities of personnel or social service agencies), and also responsibilities of a legal nature.

(b) Medication and other therapeutic measures by medical department physicians and nurses, blood sampling, serology, intravenous therapy.

(c) The use of spirochetocidal dressings for open lesions in acceptable applicants deferred because of early acute stage. Methods for deferred cases of specific urethritis to insure non-infectious conduct, personal and as concerning others.

5. The general question of methods for accelerated treatment of early lues should receive special consideration in industrial plants providing for such care. Under the methods developed in a number of institutions, bed care and constant supervision of such cases have been standardized so that the institution of these procedures may be undertaken with an advanced understanding of the personnel, costs, and hospital or clinical equipment.

The routine handling of both early and late lues in industrial plant medical services (with no hospitalization facilities) should be planned on the best of urological experience, and in many instances neoarsphenamine by intensification methods seems to be the drug of choice. Its neutral, non-hemolytic, and low toxicity makes it possible for administration with little or no interference in industrial activity. Furthermore, it would seem that daily multiple administration of arsphenamine by injection may be the solution in ambulant cases still engaged in work.

It is suggested that bismuth-arsenic medication should be a standard in the handling of cardiovascular syphilis and gummata and to hold progress in certain types of neuro-syphilis. Emphasis should be laid on the fact that bismuth-arsenic preparations should not be used in recently or remotely arrested cases of pulmonary tuberculosis or in the course of active sepsis of any sort. It is the opinion of your Committee that salicylate or mercury in combination with the iodides may well supplement intravenous medication in late secondary and tertiary syphilis and in late secondary and tertiary with established special diagnostic facts in cases of neuro-syphilis. Your Committee would also recommend a slower delayed special medication in certain cases of lues complicated by such conditions as an early or late retro-bulbar neuritis or other special sense impairment, even presumably of luetic origin.

It has been called to the attention of your Committee that a negative serology in early primary syphilis after one or two months' treatment should not interfere with the carrying out of an agreed upon standard therapeutic schedule.

Your Committee again calls attention to the practicability and simplicity of the Kline test. It is also suggested, because of the extreme sensitivity of this test, that when positive reactions occur, they should always be checked by the long Wassermann. Finally, your Committee also recommends the resort in cases of positive serology, with

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an absence of clinical signs, to the verification test of Kahn. This service can still be made available through the cooperation of Dr. Reuben Kahn, University Hospital, Ann Arbor, Michigan.

Your Committee is in hearty accord with the general social hygiene and treatment programs as initiated by Federal and local public health agencies. The policy of cooperation with public and private health promotion projects should be general throughout industry, and controversial questions involving medication, methods of administration, length of treatment, etc., subordinated in favor of active treatment supplemented by a liberal supervision.

The Employment of Cardiacs

—Problems Encountered—

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AMERICAN industry has recently passed through a phase remarkable not only for the quantity of its production, but also for its ability to produce with an ever increasing number of untrained, physically sub-standard workers. It has through necessity absorbed and utilized groups of handicaps who by previous standards were unemployable. We have gained experience in this field in the past two years unequaled in the past two decades; and it has been gained the hard way, by practical experience through doing—many times without enough time for forethought and planning.

We are now entering a new phase in which emphasis is being placed upon rehabilitation; and the change is being characterized almost entirely by planning—planning by a score of agencies, governmental and charitable, public and private, all of whom seem zealous for the credit of returning the disabled veteran to a factory job. The great good that may be accomplished by such programs may be lost, however, if these ultimate placements are not handled expertly by the industrial physician. His ability to do this job will depend more on the combined experience of physicians in industry than on directives from planning agencies. Industrial physicians, therefore, should make every effort to analyze their experience and disseminate the knowledge gained during these recent years.

The use of handicapped individuals in this war far surpasses previous records set during the first World War, and data gathered as the result of examining this vast army of workers represent a source of medical information never before equaled in the history of industrial medicine. The advancement of industrial medicine requires that this information be used to maximum advantage when it is available. We must seek to learn, for future use, lessons taught by our experience during these trying times. To do this requires careful analysis of statistical data gathered from these medical records. We must determine the results obtained through the employment of the handicapped and be prepared to render an opinion as to the worth of this group in industry.

The necessity for this is not lessened by the fact that war production may have reached its peak. The whole nation, and industry in particular, will be faced with the problem of replacing the returning disabled veteran in a productive job. The answer to many of these future problems can, I believe, be found in the experience industry has had with handicapped workers.

Read at the Tenth Annual Meeting of the California Heart Association, Biltmore Hotel, Los Angeles, California, May 6, 1944.

Prior to the expansion of industry resulting from the war, comparatively few physically handicapped persons were employed in industry. It is true that some companies had a peacetime policy of employing minority groups, including handicaps, in proportion to the percentage of such groups in the community; but, in the main, when physically fit applicants were available, the employer naturally selected them in place of those with physical limitations. This attitude was caused by several factors which are worth mentioning because our present study has a definite bearing on several of them. Adverse factors were thought to be the potentially greater accident risks and sickness absenteeism, with correspondingly increasing compensation and group insurance rates. State compensation laws which provide compensation for aggravation of existing disabilities were one of the greatest obstacles to the hiring of persons with disabilities which might normally be progressive, such as heart disease, because of the difficulty in proving that the occupation did not influence the progression of the lesion.

The handicapped, on the other hand, were reluctant to seek employment in industry, knowing the basic prejudice against them and their probable inability to "pass" a physical examination. Some hesitated to seek positions in industry because they might be required to perform work beyond the limit of their physical capacity. Industry, on the other hand, made no serious attempt to break jobs down into their easier components so that the handicapped could be utilized. And, finally, the industrial physicians had few opportunities to study the work performance of handicaps and so generally lacked the knowledge of what the risks in industry were and how effectively they might be employed.

These conditions were rather abruptly changed by the war. Instead of being able to select employees, industry was forced to hire all available manpower without particular regard to the premium it might have to pay as a result. Having employed large numbers of handicapped, we wished to find out whether their employment had resulted in a favorable experience or had been associated with factors that might be considered prohibitive in normal times.

MINDFUL of the fact that any information we might be able to disclose would benefit not only ourselves but all industrial physicians, we undertook a study of the records of those persons having cardiac lesions employed by us during the past two years. The cardiac group was chosen because it is the most difficult group of physically handicapped to place, the last group employed, and the group with the least possibility of utilization. The nature of heart disease, with progressive disability, accounts for the difficulty in the employment of cardiacs. The man who has lost an arm, a leg, or an eye has a permanent disability which can be easily rated, and when properly placed in a suitable occupation presents no further difficulty. One man with such an injury can do the same work as any other man with a similar injury.

This is not true of the cardiacs. Etiologic and anatomic factors, the degree of disability, and rate of progression make of each cardiac an individual placement problem. The job which a man with a simple systolic murmur of rheumatic origin can perform may be totally unsuited to the one suffering from syphilitic aortic regurgitation. While one cardiac may be capable of performing a job requiring walking and standing, and perhaps a little climbing, another may be safely permitted to perform only the lightest type of sedentary work. The wide variations between the

abilities of various cardiacs complicate their placement, especially in an industry such as airplane manufacturing where the daily job routine may require work on as many as 30 to 50 different types of assemblies, although relatively the same operation is performed on each piece.

Placement of cardiacs is further complicated by a general lack of understanding on the part of the public and lay supervision. We have frequently met with refusal on the part of the supervisor to employ a cardiac because "how can I tell whether this fellow is going to drop over dead." The fear of sudden catastrophe as a result of employment of the cardiac weighs heavily on the supervisor who is responsible for the morale of his department. We have found it necessary to educate supervision to the truth that many of the cardiacs we employ, when properly placed on jobs within their physical capacity, will probably be able to perform such work for many years.

Our study of cardiacs is continuing, but we now have assembled preliminary data available on a group of terminated employees from one of our largest plants. A study of this group was undertaken first in order that we might determine the factors resulting in termination and be able to utilize the findings of this preliminary study in our more intensive analysis of cardiacs now employed. Those having cardiac lesions hired during the past two years represent 3% of the more than 69,000 persons examined for employment. Of those included in our study, approximately 25% were discarded because sufficient and accurate records were not available. The group which forms the basis of this paper includes 777 persons of both sexes, and white and negro races.

In undertaking this study we felt every effort should be made to determine all factors surrounding their employment, in order that significant variations in any phase which might reflect on their utilization would be available for consideration. Factors included in our study, therefore, are sex, age, race, job classifications, hiring and termination pay rates, sickness absenteeism, safety records, compensation insurance claims and payments, group insurance benefits, length of employment, and reasons for termination. These factors were considered in comparison with known plant averages for the same factors, and statistically significant surveys, to determine deviation of the cardiac group from the norm during the same period.

Etiology

THE industrial pre-employment examination cannot of necessity be as comprehensive as the examination made by the cardiologist in his private office. Such examinations must be on a production line basis to process as many as 500 employees per day during peak employment periods.

The examination, however, has several important purposes: (1) rejection of those physically unfit to do any work; (2) proper placement of those with limited physical ability, and (3) the recording of all physical defects or disabilities. Particular stress is placed on this latter requirement because of its importance from the medicolegal standpoint, as a reference at a later date in the rating of disabilities and adjustment of compensation claims.

The examining physician must be familiar with all plant occupations and know their various physical requirements, and must also have at his disposal diagnostic aids such as the chest x-ray and the electrocardiogram, when these are of value in deciding borderline cases.

The primary responsibility of the examining physician is to place the employee in a job commensurate with his physical ability. It is not always possible, nor essential, under such circumstances to establish etiologic factors of valvular heart disease, so long as the physical findings are adequately recorded. In this the examining physician has a different viewpoint from that of the cardiologist.

Therefore, in the study of our cardiacs, we have not placed as much stress on the factor of how the 10% whose valvular disease was diagnosed as rheumatic in origin, compared as physical entities with those of congenital or hypertensive origin. Our main concern is with cardiacs as a group; we seek to determine how they have performed as a group of employees.

While etiologic factors are not stressed it may be of interest to know that the study group cases include approximately 15% in the hypertensive range, having blood pressures ranging from 150/90 to 240/150; also 15% were diagnosed as mitral stenosis, 4% as multiple valvular lesions, and 1.5% of congenital origin. It is our intention to consider carefully etiologic factors in the continuing study of presently employed cardiacs.

In the course of the pre-employment examination, all applicants are required to fill in a physical history questionnaire which includes the questions: Have you ever had heart trouble? Have you ever had shortness of breath? and, Have you ever had rheumatism? We are aware that any such questionnaire is unreliable because of the normal tendency of the applicant to conceal physical disabilities. This assumption is borne out by the fact that 71% gave negative answers to the three questions mentioned; 19% admitted previous diagnoses of heart trouble, while 8.5% admitted a history of rheumatism.

Analysis of our findings is simplified by dividing data obtained into two groups—the first group being factors in which cardiacs are similar to the average of other employees; while the second involves those factors where the deviation of cardiacs from the norm is significant. The first group includes sex, age, occupation, race, rate of pay, and reason for termination. The second group includes absenteeism, accident rate, compensation payment, group insurance benefits, and the duration of employment.

Sex

BY SEX, this study includes 451 men, 58% of the total, and 326 women, 42%, showing an insignificant difference from the plant average which was 60% for men and 40% for women during the study period.

Age

MEN averaged 32.6 years of age as compared to a plant average of 37.3 years; while women averaged 26.4 years as compared to 29.7 years. The difference between the average ages of the cardiacs and the plant average can probably be explained by the fact that younger men without physical disabilities were taken for military service, leaving only those above draft age and the physically unfit for industrial manpower.

Fifty-five per cent of the men and 75% of the women are in the 16 to 30 year age group. The age range of men is from 16 to 77 years, while the women's range is from 16 to 59 years.

Race

WHILE not considered of particular importance, the study is representative of national groups in the company's employ during the period; 8.2% of the cases included being negro, as compared to an average of 4.4% for all negro employees.

Job Classification

IT IS FAIRLY easy to absorb people with fixed handicaps, such as the loss of a hand or foot, for such disabilities are static and will not be aggravated by employment. On the other hand, it is much harder to place those with progressive disabilities because of the varying degree of disability under the same diagnosis and the necessity of placement which will not result in aggravation of the disease.

The physician's responsibility does not end in saying what the handicapped may do. He must be sure that supervision understands the exact nature of the problem and that proper placement is made. He must also be sure that subsequent job transfers do not introduce some new job factor which will be harmful. These people become the responsibility of the medical department throughout their employment. It is necessary, therefore, to develop some system of classification and limitation which will insure protection of the employee on transfer, will be easily understood by supervision, and does not reveal medical diagnoses which might be prejudicial to the employee.

We do not believe it is necessary for the foreman or supervisor to know the details of what is wrong with a person as long as he knows what the person is prohibited from doing. In developing a limitation system, it was felt that the method of matching specific disabilities with specific jobs was too inflexible for the aircraft industry where the daily routine may require work on many types of assemblies. On the other hand, matching disabilities with job classifications may be too liberal because many different types of work are frequently included under the same job classification. For example, the job classification of "general assembler" in the electrical assembly department is sedentary bench work while in the final assembly department, it involves heavy lifting and climbing in the installation of motors, controls, etc.

The system we have developed seeks to protect the employee by prohibiting specific acts, at the same time allowing freedom of jobs for which he has the physical capacity. When properly placed, the handicapped person is as capable of performing his job as the person without a physical defect, and he is expected to do so. The physically limited are placed in one or more of six classifications.

LIMIT I—*No hazardous machinery* is given individuals having visual defects, epilepsy, diabetes, and others to whom the machinery would be dangerous.

LIMIT II—*No heavy lifting* is assigned to persons having cardiac conditions, orthopedic disabilities, hernias, and similar ailments, and these are prohibited from lifting more than 25 pounds at any time.

LIMIT III—*Ground-level work* is placed on persons having cardiac disabilities, orthopedic impairments, hypertension, epilepsy, diabetes and similar impairments. These people are not permitted to work on ladders, scaffolds or airplane wings, or in other high places where they might be injured by falling.

LIMIT IV—*Fume and dust-free work* is assigned to persons having asthma, tuberculosis, and other respiratory conditions. These employees are not permitted to work in areas where gases, fumes, or harmful dusts are created.

LIMIT V—*No excessive walking or standing* is assigned to persons having cardiac disability, impairments of the lower extremities, varicose veins, and similar disabilities, and prohibits these persons from doing jobs requiring constant walking or standing.

LIMIT VI—*Special and miscellaneous* is used to classify other impairments which are not included in the first five. An example of this limitation is the requirement of work in a noise-free area for an employee suffering from chronic ear disease.

Properly to apply the limitation system, the examiner has to be thoroughly familiar with the physical requirements of job classifications. Analyses of plant occupations revealed that the multiplicity of operations included under various jobs resulted in a minimum number being available for handicaps. A far greater number, however, showed possibilities for the use of such individuals if broken down to eliminate operations which might prove injurious. Consequently, a complete job breakdown program was undertaken by plant supervision, with the cooperation of the medical department. Each job classification was analyzed to determine the physical requirements necessary to perform the various operations, the manner in which the work was done, the work conditions under which it was done, and other factors influencing the employee's performance. By regrouping operations so that those of similar nature were included under a single classification, it was found the majority of occupations could be performed by some of the various types of handicapped persons.

The combination of medical limitations and job breakdowns has resulted in maximum efficient utilization of employees. Prior to the development of this system, a drill press operator, for example, was required not only to operate his drill press, a task easily learned and capably performed by any intelligent individual, but also to carry his own stock from the storeroom to his machine, and transport the finished pieces from his work place to the next operation. Consequently only those physically fit to carry heavy trays of parts could be employed as drill press operators. By means of job breakdown, the operation of the drill press was segregated from the loading and unloading of stock, and drill press operation was subsequently approved as an occupation that could be performed by persons limited to Classes II, III, IV, or V. Since one physically fit stock clerk could keep as many as six to 10 drill press operators loaded, it is evident how greatly the opportunity for the physically handicapped was expanded by this method. The same analysis has been carried out in all operations. Today, only a few of the heaviest manual jobs such as drop-hammer operator, crane operator, metal spinner and lead moulder require physically fit men to perform the necessary operations.

The wide utilization of cardiacs, possible under the placement and limitations system developed, is indicated by their use in 99 out of 353 job classifications in the industry. Occupations in which cardiacs have been placed under this system include such jobs as personnel interviewer, electrical and radio assembler, general assembler, precision bench assembler, buffer and polisher, drill press operator, hydraulic press operator, machine parts inspector, general installer, janitor, bench machinist, aircraft painter, punch press operator, riveter, sheetmetal worker, spot welding, tool crib attendant, bench tube bender, turret lathe operator, welder, sandblaster, storekeeper, duplicating machine operator, accountant, accounting clerk, commercial artist, general clerk, file clerk, posting machine operator, dispatcher, stenographer, stock clerk, illustrator, timekeeper and typist.

Pay Rate

IN THE matter of rate of pay, cardiacs generally show no significant variation from the plant average, the average hiring rate for men being 70 cents per hour, and for women 62.7 cents per hour. The plant average, as determined by an independent statistical study, is

69.6 cents for men, and 62.8 cents for women. Pay rates at the time of termination are equally close, except for men. The average terminating pay rate for male cardiacs was 78.7 cents as compared with the plant average of 87.9 cents. This is primarily due to the fact that their length of employment is shorter than the plant average.

Analysis of pay rates reveals that cardiac employees were hired at wage rates on a par with all other employees, and that they received wage increases equal to those received by other employees, considering the length of employment.

Reasons for Termination

CONTRARY to reasonable expectations, the reasons given by cardiacs for termination are identical, within an irrelevant percentage, with the reasons given by all employees. Of the cardiac group, 85.7% terminated voluntarily as compared to the plant average of 84.1%. Reasons for voluntary termination included health, working conditions, living conditions, and personal affairs; 17.6% of the cardiac and 17.7% of all employees gave health reasons; working conditions were given by 14.9% of cardiacs and 16.9% of others; living conditions by 2.9% of cardiacs and 4.9% of others, while personal affairs accounted for the greatest number of cardiacs—50.5%—and, similarly, the greatest number of others—44.6%.

Of the reasons given, only the first, health, is of importance in the consideration of the employability of cardiacs, and in this we find practically no difference between the cardiacs and other employees, indicating that while cardiacs may terminate as a result of their lesion, other employees terminate at the same rate for other physical disabilities.

It should be noted that only personal illness is included in the classification of health. Illness in the family is included under personal affairs, which classification also includes such items as marital relations, child care, home problems, return to school, etc. Working conditions are related to employment at the plant, and reasons in this classification include dissatisfaction with wages, hours, shifts, job classifications, etc. Living conditions include housing, transportation, distance from home to the plant, and in the case of two or more persons in the same family employed, differences in shifts.

It is evident that in all of the factors so far mentioned, cardiac cases included in our study correspond exactly in almost every detail with plant averages, indicating that in these factors cardiacs are a cross section of the plant population, except for their anatomic defect. This defect apparently did not place them at a disadvantage with other employees in the factors mentioned. In other factors, however, significant differences are noted.

Absenteeism

ABSENTEEISM is one of the most important problems faced by industry, especially during wartime. In this important matter the cardiacs in our study showed a much better performance than the average employee. The average male employee, as determined by an individual statistical study, has an absenteeism rate of 10.2%. Male cardiacs have an absenteeism of only 6.1%. The average of women employees is 14.1%, while women cardiacs have an absenteeism of 9.5%. In terms of production, therefore, the average cardiac employee, when properly placed, will be away from the job on account of illness fewer days per year than the average employee, and consequently should have a higher productive efficiency rating on this score than the average. Absenteeism as used here includes only absences for illness.

First Aid Treatments

FIRST AID treatments constitute the greatest portion of the medical division's work in any industrial organization; in this matter, cardiacs in our study have a significantly better record than the average of all employees. After treatment in the hospital or first aid station, a form is completed for all except minor cases. Tallying these records, cardiacs had 6.2 cases per 100 individuals per year, as compared to the plant average of 12.6 cases. This indicates that cardiac employees had fewer than half as many major treatments of all kinds of sufficient importance to warrant the preparation of a report. Of the 48 recorded cases in the cardiac group, only six resulted in hospitalization and a total lost time of 59 days. In only a single case was the injury in any way referable to a cardiac complaint. Although the reason why cardiacs have a better first aid record is not evident, it is important to know their record in this matter is not worse than the average for the plant.

Workman's Compensation

OUR STUDY indicates that cardiac employees do have more industrial lost time accidents than the plant average, but not more than employees with the same duration of employment. The frequency rate for our group was 14.28—nearly twice the plant average of 7.64. Safety statistics show that the accident rate of employees during their learning period is nearly double that of the plant average, and, since the average length of employment for our cardiacs is within the period of the learning curve, the cardiac group shows no significant variation in this respect. Their accidents, however, are much less serious than the average, the severity rate for our group being 0.093—only 16% of the plant average of 0.570.

More significant to the employer who has avoided the hiring of cardiacs because of possible claims for aggravation of a pre-existing disability is the fact that only one claim resulting from a cardiac death was filed by our study group. This claim, which resulted from a death on company property, was subsequently ruled as non-occupational and non-compensable.

To date, the company has been required to pay only one cardiac death claim, and this was a compromised settlement. In this case an employee with a cardiac lesion, working at a plant other than the one we have studied, fell and fractured his skull. The autopsy revealed cerebral hemorrhage and coronary arteriosclerosis. Which of these caused the death could not be determined, and a settlement of approximately two-thirds of the full death claim was paid.

During its history, the company has paid for the aggravation of several heart lesions, and these have had a high average cost. An example of such a claim is that of a flight engineer who, despite limitation against flying by the medical department, was sent on a trip in a company airplane. While in flight, he moved sand bags in the ship and suffered a heart attack. This claim cost the company $1,042.

Group Insurance

DURING the year 1942-43, average participation by all employees in the company-sponsored group insurance plan was slightly less than 85%. We could not determine that our study cases participated in the same percentage, but it is assumed that this is true since all employees, regardless of physical condition, are eligible for these benefits. Consequently, compari-

son of our statistics on this matter with the average for the plant is feasible.

Our cardiacs filed a total of 61 claims for group insurance benefits involving lost time, hospitalization, and medical and surgical coverage. The rate of cardiac claims for lost time payment was 6.8 per 100 insured cardiacs, while the plant average was 30.0 per 100. Cardiac hospitalization claims were at the rate of 2.7, while other employees filed similar claims at the rate of 8.7. Medical and surgical claims by cardiacs were at the rate of 5.4, and the rate for other employees was 16 per 100.

Lost time claims by cardiacs averaged $119, as compared to $78 for other employees, but hospitalization and medical and surgical claims were lower. Group insurance statistics do not permit determination of the average cost per claim for all employees, consequently no comparison between cardiacs and other employees is possible.

Only eight of the claims filed by cardiacs were for sickness of cardiac origin. However, while representing only 13% of the claims filed, these accounted for 36.4% of insurance benefits paid to the cardiac group, and 25% of the total lost time of 1,421 days. The average cost of claims of cardiac origin was $356. The cost of claims of cardiac origin was increased by the inclusion of a death benefit of $1500.

It is evident, therefore, that cardiacs generally filed fewer claims than the average of all employees, but the cost of claims of cardiac origin was more than twice as high as those originating from other illnesses. This would seem to reflect detrimentally on the cardiac, but, by similar analysis, pregnancy appears to be far more important as a cause for disability than a cardiac lesion. The greatest number of major claims filed by all employees result from pregnancy, and these cases represent by far the greatest cost to the insurance carrier.

While the following information cannot be included in our study, there is much interest in statistics prepared independently by the group insurance department. Many cases included in the following analysis are not included in our cardiac study because the lesion developed after employment. This information is of supporting value only in so far as our study is concerned.

During the year 1942-43, a total of 113 lost-time; 52 hospitalization; and 65 medical and surgical claims were filed by all employees for illness of cardiac origin. Lost-time claims from this cause represented 2.35% of all claims; hospitalization represented 1.05%, and medical and surgical claims represented 1.35%. The average cost of such claims was $254.

We again wish to emphasize that the above is not information obtained through our study. Claims by those in our study group are included in this analysis, but claims from others not in our case group are also included.

Duration of Employment

THE duration of employment is of importance to the manufacturer who wishes to reduce production costs. It has been estimated that no employee earns his full wage until he has been on the job at least three months. The employees who terminate before this time represent a net productive loss to their employers. With this in mind, we must admit cardiacs compare unfavorably with the plant average on this score. A quarter of all male cardiacs, and 16% of all females left the company within the first month of employment, and by the end of the third month 55% of the cardiacs had terminated, as compared with the plant average of 44%. During the first year, 96% of the cardiacs terminated; while 80% of other employees terminated in a similar period. The value of cardiacs is lessened by their rapid turnover.

Case Histories

STATISTICALLY, the study of cardiacs as a group indicates their usability in industry, but the study of individual cases highlights specific problems which require consideration.

Of the 777 persons included in our study, five died during the term of their employment. Their histories are as follows:

CASE A.—Male, age 53, married, no children. Employment prior to examination shows he was employed as a traffic manager for an airline, operator of a citrus ranch, and as a kiln attendant in a pottery plant. At the time of employment, this man indicated no history of heart disease or rheumatism, and was accepted for employment and limited to Class II. The examination shows a blood pressure of 170/100 with tachycardia and a soft systolic mitral murmur. He was employed as a tool crib attendant on September 28, 1942. His work was above average, and he shows a salary increase to 90 cents an hour in September of 1943. On December 31, 1943, while working in the tool crib, the man died. An autopsy was performed, and the cause of death was determined as coronary sclerosis. A group life insurance claim of $1500 was paid on this case.

CASE B.—Male, age 55, married but separated. Prior to examination he was employed an an automobile salesman, restaurant manager, and as a cook on a construction job in Hawaii. No history of heart disease or rheumatism was indicated at the time of employment. Blood pressure was 122/80, and no sign of cardiac complaint was found. Consequently, he was accepted for unlimited employment as a general assembler on July 26, 1943. Less than a month later he was transferred on advice of his private physician to a job as a tool crib attendant. His physician indicated he had suffered an acute heart attack August 14, 1943, and was suffering from chronic valvular heart disease with heart enlargement, and advised against strenuous work. Six weeks later he suffered a fatal heart attack.

CASE C.—Male, age 56, single. Previous employment history not available. At the time of employment this man indicated no history of heart trouble or rheumatism, but admitted spending 10 weeks in the Veterans Hospital as the result of an automobile accident in 1936. Blood pressure was 160/100 and a systolic murmur was heard. He was hired as a riveter learner and limited to Class II, no heavy lifting, because of his heart condition and an inguinal hernia. He reported for work November 16, 1942, and died at his home on November 23. An autopsy was performed, and the cause of death given as coronary arterial sclerosis.

CASE D.—Male, age 53, married. Previous employment was as an egg salesman until 1941, when he worked as a florist delivery clerk, later as a gasoline station attendant. At the time of employment he indicated no history of heart trouble or rheumatism. Blood pressure was 120/80, and no evidence of heart disease was found. He began work as a utility worker on December 27, 1943. On February 2, 1944, he told his foreman he was having "trouble with his heart" and exhibited a bottle of pills, contents unknown, which he took when he felt an attack coming on. At that time his foreman advised him to do nothing but easy work, however, on February 7, directly after reporting to work, he suffered a fatal heart attack. An autopsy was performed, and the cause of death given as chronic myocarditis due to coronary arterial sclerosis.

CASE W.—Male, age 61, married but separated. Previous employment as an accountant and statistician before retirement in 1934, and as a stock clerk and office manager subsequent to 1941. History of heart trouble and rheumatism was denied, but shortness of breath was admitted at the time of examination. Blood pressure was 160/90, and he was accepted for employment as a production clerk and limited to Class II. He began work on December 2, 1942,

and worked for five days. While on sick leave he suffered a fatal heart attack at his home on January 27, 1943. Cause of death given on the certificate was pulmonary edema due to dilation of right heart due to coronary sclerosis. Death benefits were not paid to four of the above who were not participants in the group insurance plan.

Cardiac Cases

OTHER cases selected from the group who have interesting information:

CASE E.—Female, negro, age 48, married but separated, no children. Previous employment as a housemaid. At the time of examination no history of heart trouble or rheumatism was indicated. Blood pressure was 204/116, and a systolic murmur was heard at the apex. Subsequent rechecks on blood pressure revealed a lower pressure of 166/100. Hypertension was noted by the examining physician, but no limit was imposed and the woman was hired as a janitress n October 25, 1943. Her supervisor noted that she was an exceptional worker, but terminated on December 14 because she felt janitress work was too difficult for her.

CASE F.—Male, age 55, divorced. Previous employment as a publication salesman. At the time of examination no history of heart trouble or rheumatism was indicated. Blood pressure was 196/92, and poor heart sounds and systolic murmur at the apex and aortic were indicated by the physician. Subsequently a lower blood pressure of 140/88 was recorded. He was hired as a parts handler on October 12, 1942, and transferred to a job as a circle saw operator on December 5. On December 14 he suffered an attack of influenza and bronchitis and lost 35 days. On April 2, 1943, he terminated, giving poor health as the reason. He was rehired August 23, 1943, as a general clerk, at which time he was limited to Class I, nonhazardous work. Blood pressure was 170/100. He terminated November 5, 1943, to accept employment as a salesman.

CASE G.—Male, age 32, single. Previous employment as a clerk, personnel assistant, writer, and salesman. At the time of employment, a history of rheumatic heart disease was given. Blood pressure was 180/60, and rheumatic heart disease was noted by the examining physician. He was limited to Class II, no heavy lifting, and hired on September 13, 1943, as a general clerk. On September 25 he was transferred to a material control clerk. On November 12 he terminated, giving as a reason that the work was too hard for him, and submitted a statement from a cardiologist to the effect that he was suffering from rheumatic disease with heart enlargement, and urging that he restrict himself to very light work. His condition was noted as not progressing favorably. He was released to seek part-time work near his home.

CASE H.—Male, age 63, single. Previous employment as owner of a tailoring establishment. No indication of heart trouble or rheumatism was given at the time of employment. Blood pressure was 192/118, and enlargement of the heart with a pounding pulse was noted by the examining physician, who requested the advice of the applicant's personal physician. The physician noted that the applicant was under treatment for hypertension and arterial sclerosis. He was hired on October 18, 1943, as a janitor and his employment was contingent upon monthly blood pressure re-checks. On December 1, the chief surgeon saw this employee and recommended that he terminate for the good of his health. The employee did so, as he felt janitor work was too heavy for him, and no lighter work was available.

CASE I.—Female, aged 47, divorced, two children. Previous employment as an office worker and sales clerk, with a short period as an assembler in the plant of an aircraft subcontractor. At the time of examination no indication of heart disease or rheumatism was given. Blood pressure was 234/114, and the examining physician noted a condition of systolic, aortic and tricuspid murmur; also that the applicant was extremely obese. She was employed on October 7, 1943, as a general assembler and limited to Class III, ground-level work, and Class V, no excessive walking or standing. On January 29 she was transferred as a riveter without increase in pay because of poor attendance and quality and quantity of work. She terminated on February 11, 1944, because of dissatisfaction with wages. Rating by her supervisor at that time shows she was a below average worker in all respects, and especially as to output.

CASE J.—Female, aged 40, married, no children. Previous employment as a shop clerk. At the time of examination no indication of heart trouble or rheumatism was given, although the applicant admitted being hospitalized in November, 1943, for hypertension and nephritis. Blood pressure was 210/110, and the examining physician noted the heart was irregular and enlarged. She was employed on July 19, 1943, as a clerk. On November 16, 1943, she suffered an attack of subarachnoid hemorrhage, and nephritis with hypertension, which resulted in her being on sick leave for 91 days. She returned to work on February 29, 1944, and terminated when the medical division refused to approve her return to work.

CASE K.—Male, aged 35, married. Previous employment as a clerk, storekeeper, salesman and warehouseman. At the time of employment, history of heart trouble or rheumatism was denied. Blood pressure was 138/82. He was employed on July 27, 1942, as a circle saw operator. On January 11, 1943, he suffered a heart attack which was diagnosed as acute myocarditis with acute dilation with angina, which resulted in his being on sick leave for 91 days. A subsequent attack on July 27, 1943, was diagnosed as angina pectoris and myocarditis. On November 21, 1942, he was transferred from circle saw operation to a storekeeper, which job he had when he went on sick leave. This employee returned to work on May 25, 1943, at which time the examining physician noted a slight irregularity of the heart which was diagnosed as myocardial damage, and was limited to Classes II and III. On August 12 he was seen by the plant physician, and complained of having pains over the heart area from the time of his first attack. He was terminated on November 10, 1943, for absenteeism.

CASE M.—Male, age 58, married. Previous employment as stock clerk and private patrolman. Admitted history of heart trouble and shortness of breath at the time of employment. Blood pressure was 170/100, and a subsequent pressure of 140/100 was obtained. The examiner noted that the heart sound was very irregular, and he was accepted for employment as a sweeper on December 2, 1942, with limitations to Classes I, I, and III. He terminated December 9, after working only three days, on advice of his physician who recommended that he do no work of any kind.

CASE N.—Male, age 41, married. Previous employment as a mechanic. Admitted history of heart trouble, rheumatism, and shortness of breath at the time of employment. Blood pressure was 160/88, and the examiner noted the presence of a rapid pulse with marked systolic murmur. An electrocardiogram was done and the diagnosis of sinus tachycardia was made, with a notation that changes suggesting the use of digitalis were found, but there was no evidence of severe myocardial damage. He was accepted for employment as a jig and fixture builder on May 17, 1943. On June 21 he went on sick leave and was terminated July 5, when efforts to determine the cause of his illness were unavailing.

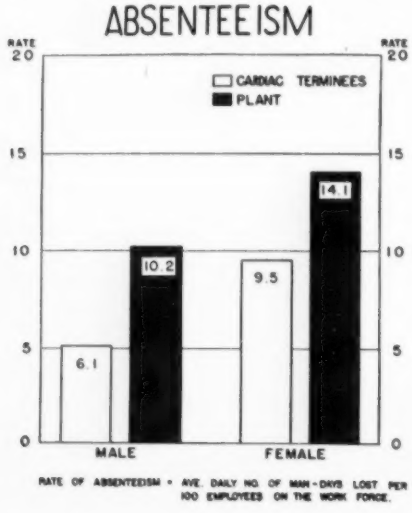
CASE O.—Male, age 62, married. Previous employment as a plasterer. Denied history of heart trouble or rheumatism at the time of employment. Blood pressure was 184/110, and the examiner noted that he was very nervous and a systolic murmur at the apex was found. He was accepted for employment as a plaster pattern maker on November 16, 1942, and terminated 12 days later without apparent reason.

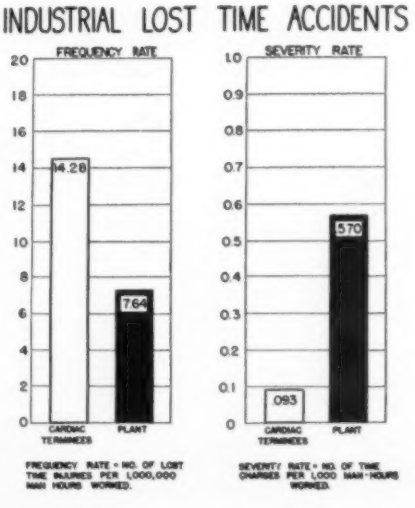
CASE P.—Male, age 58, married. Previous employment as a carpenter. Admitted presence of heart trouble and rheumatism at the time of examination. Blood pressure was 160/90, and the examiner noted that the first heart sounds were rough. Accepted as a jig builder on November 23, 1943. He terminated November 26, on the advice of his private physician.

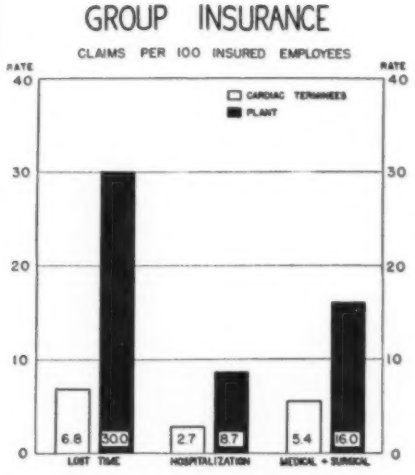
CASE Q.—Male, age 41, married. Previous employment as a blacksmith's helper. Denied history of heart trouble and rheumatism at the time of employment. Blood pressure was 132/102, and the examiner noted the presence of a systolic murmur at the apex which was regular and not transmitted. He was accepted for employment as a detail assembler on August 18, 1942, and limited to Class II. In November, 1942, he was transferred to tank cleaning and continued in this occupation until March 1, 1943, when he was forced to take a sick leave on account of his heart lesion. He was terminated on July 24, on recommendation of his physician that he obtain outdoor work.

CASE T.—Male, age 27, married. Previous employment as farm worker and cook. Denied history of heart trouble or rheumatism at the time of employment. Blood pressure was 120/80 and the presence of a systolic murmur at the apex was noted by the examiner. He was accepted for employment as a general installer on October 6, 1942, and limited to Class II as the result of electrocardiographic findings, and terminated on March 15, 1943, because of dissatisfaction with transfer to a new department, and was rehired the same day in another plant. On April 17 he suffered a heart attack diagnosed as a cardiac dilation with valvular insufficiency, which resulted in 16 days sick leave. He terminated on May 12, after suffering a severe heart attack at work on the previous day.

CASE U.—Female, negro, age 34, married, one child. Previous employment as a laundry worker and dish washer. Denied history of heart trouble and rheumatism at the time of examination. Blood pressure was 168/140, and the examiner noted the presence of a systolic





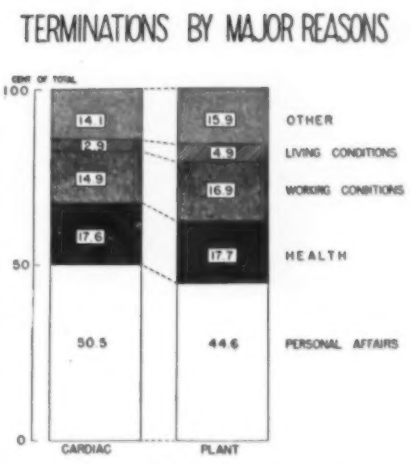


murmur at the apex, suggesting a mitral lesion. She was accepted for employment as a parts handler on January 15, 1943, and continued in this occupation until May 5, when she was transferred to general assembly. She was again transferred on July 17 as a saw operator and continued at this work until October 6, when she terminated for reasons of health. During her employment she was absent 16 days for illness.

CASE V.—Male, age 63, divorced. Previous employment as a chauffeur and mechanic. Admitted history of rheumatism at the time of employment. Blood pressure was 200/78, and subsequently a lower pressure of 160/82 was obtained. He was hired as a sheet-metal worker September 28, 1942, and continued in this occupation until September 1, 1943, when he went on sick leave as the result of an acute sciatic condition. He felt he would not be able to return to work, and was terminated on October 9.

CASE Y.—Male, age 63, married. Previous employment as a sales-service man. History of heart trouble was admitted at the time of examination. Blood pressure was 180/100, and the examiner noted a faint diastolic aortic murmur. He was limited to Classes I and II and accepted for employment as a sweeper on November 23, 1942. He was transferred to a job as an etch tank operator on December 24, to a spot weld assembly on February 13, 1943, and as a general assembler on March 27. He terminated on April 24, stating the work was too heavy for him. His work record reveals his performance was rated from poor to fair.

CASE Z.—Female, age 56, married, three children. Previous employment, none. Denied history of heart trouble or rheumatism at the time of employment. Blood pressure was 182/92, and the examiner noted the presence of a systolic murmur along the left sternal border, and moderate obesity. She was accepted for employment as a filer and burrer on April



20, 1943, and continued in this employment until June 25, when she terminated on the advice of her private physician who stated he was treating her for moderate hypertension and general asthenia. Her physician noted she had been maintaining her own home while employed, and expressed an opinion that this dual work was injurious to her health, and, since she could get no household assistance, she must terminate.

Summary

THE USE of the physically handicapped in industry during the present war, resulting from the critical need for manpower, surpasses any previous record for use of this group; and data gathered from examination of these people represent a source of medical information from which industrial medicine must find the answer to the question of the worth of the handicapped in industry.

Few handicapped were employed in industry prior to the war because employers could secure sufficient physically fit people for their needs, and feared responsibility for aggravation of pre-existing disabilities, and adverse accident and absentee experience with greater compensation and group insurance costs, from the employment of the handicapped. The handicapped did not seek employment, knowing the basic prejudices against them, and industrial physicians generally lacked knowledge of the risks of handicaps in industry.

Our study of the cardiacs was undertaken because this group is the most difficult to place, the last employed, and has the least possibility of utilization, due to the progressive nature of the disease. Also, placement is further complicated by misunderstanding by lay supervision of the cardiacs' employment possibilities.

The pre-employment examination used by industry has three basic purposes: (1) Rejection of those physically unfit for any work; (2) proper placement of those having limited work ability; and (3) the recording of all physical defects and disabilities. The responsibility of the examining physician is to place the employee in a job commensurate with his physical ability. To do this, he must be familiar with the physical requirements of all plant jobs.

Proper placement of the handicapped, and their protection in case of transfer, required the development of a system of limitation classification which would be easily understood by supervision and would not reveal medical diagnosis. The system we developed was planned to protect the employee by prohibiting specific acts which would be harmful, but at the same time allowing freedom of jobs. When properly placed under this system, a handicapped employee is considered to be as capable on his job as any employee would be.

Analysis of plant jobs was necessary to determine which were satisfactory for handicapped employees. As the result of this analysis, a job breakdown was undertaken which resulted in the grouping of operations of similar nature, and the elimination of factors which might be injurious. By this method, a great many jobs which previously could not be performed by the handicapped were made available for this group. The result was the employment of cardiacs in 99 out of 353 job classifications in the industry.

Cardiacs employed during the two-year period covered by our study represent 3% of all applicants examined for employment. Our study includes 777 employees hired during this period who have now terminated their employment. A more extensive study of cardiacs still employed is continuing.

Statistical analysis reveals that our study group compared almost exactly with plant averages in the matters of: sex, age, pay rates, and reasons for termination. In the factors of sickness absenteeism, medical treatments, and, generally, workman's compensation and group insurance, our experience with cardiacs was more favorable than with the average employee. A poorer record by our cardiac group was evidenced in the matter of the duration of employment only.

Conclusion

WE CAN CONCLUDE, therefore, that those handicapped by cardiac lesions can be employed successfully in industry when properly placed in jobs within the limit of their physical ability. When so employed, compensation, production and personnel costs, generally, are not increased as the result of their disability.

Wide employment of cardiacs in industry depends on the breaking down of jobs so the greatest possible number may be available for cardiacs. The pre-employment physical examination is the critical factor in the proper placement of all handicapped workers, especially cardiacs.

Despite the successful utilization of cardiacs, taken as a statistical group, case histories illustrate the necessity for consideration of each cardiac as an individual placement problem. In large groups, such as ours, the law of averages tends to spread the risk, but

where small numbers of cardiacs are employed, great care should be taken to eliminate any case which suggests the imminence of disability. When the employer does not have a separate medical department, employment should be deferred until a complete diagnosis from a competent outside cardiologist is available, so the possibility of decompensation can be judged accurately. Proper placement recommendation requires that the cardiologist familiarize himself with plant job requirements, so that the possibility of aggravation of the existing disability may be avoided.

The tendency of cardiacs to terminate after a short periods of employment militates against their employment. Mentally or emotionally unstable applicants should be rejected, as they do not remain on the job long enough to justify their employment and training costs.

Why Not Complete the Job?

DOUGLASS A. CAMPBELL, A.B., M.S., J.D.,
Referee of California Industrial Accident Commission

THIS PAPER is to suggest a plan which, if adopted, would further the practice of industrial medicine. Certain existing evils would disappear. Your active participation would permit the collection and wide distribution of factual, scientifically correct information for the joint use of industrial practitioners and the army of laymen who must work with them in the field of workmen's compensation.

Legal Research Tools

IN THE legal profession, through the state and United States supreme courts, a system of tribunals exists before which conflicting legal concepts can be presented to obtain a final authoritative statement of the principles involved. By an efficient system of reporting and indexing, even small town general practitioners can locate copies of those opinions throughout the nation in which such principles have been adjudicated. The medical profession lacks a comparable agency and suffers accordingly. The great need of industrial medicine is a professional tribunal of authoritative judgment upon the problems within this field.

The Layman's Interest

CONFLICTING claims concerning industrial causation present a recurring problem of etiological identification which distinguishes industrial medicine from most other forms of practice. Medical ideas of cause and effect must be presented to and be passed upon, for rejection or acceptance, by laymen. Errors are inevitable under such a system.

The coverage of compensation acts has steadily increased through the years. Here in California we have the maximum of scope. Any disability or disease which is either caused or aggravated by the employment gives rise to compensation rights and obligations. This touches the whole realm of medicine.

The Layman's Complaint

ONE GAINS the impression that the medical profession fails to realize the extent of the growth and transition which has occurred in industrial medicine whereby traumatic surgery is now but a part of a larger whole. To serve effectively in this field the practitioner must appreciate that he has an obligation not alone to the patient but of scientific accuracy to that group of laymen who must adjust or litigate the compensation claim.

Read before the WESTERN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS, Los Angeles, Cal., May 6, 1944.

Your membership in this Association indicates the recognition of common interests and problems. But, frankly, how many of the profession generally actually consider that you are in a specialized field? How many of you, no matter what your basic specialty may be, really appreciate that, when engaging in industrial practice, a further specialization is involved with all its peculiar demands and problems? Frankly, most of you are still practicing general medicine in your points of view towards this subject.

The Litigation Complication

THE TREATMENT of a compensation case demands the highest application of the art of healing. We are proud of the quality of professional care which the industrially injured are receiving in California. Although the choice of doctor by the injured person is practically precluded, because the cost of treatment must then be assumed, we find little criticism about the quality of medical care. Some faults of psychology and tact are apparent but no more so than is inherent in human nature.

Unfortunately, one cannot divorce the litigation complication from industrial medicine. Each case is potentially the source of litigation concerning industrial causation. In this phase, the science of medicine alone is important. It is understandable that in a supposedly empirical science certain disagreement will exist. Actually more persists upon subjects concerning which intelligent investigation would produce positive facts, true to the point of actual demonstration, than is warranted.

Here industrial medicine has failed to attain its potential stature. Many practitioners lack the zeal of the researcher for demonstrable verities. The ordinary compensation case emphasizes this daily. This confusion in group thinking imposes an added but avoidable burden upon lay administrators. A medical opinion comes into court with special status. It is supposedly from a trained man upon a scientific subject concerning which the ordinary layman can form no competent opinion. To the extent that the profession develops and applies widely accepted, soundly founded postulates the fewer will be the conflicts.

The litigation element, potentially present in every workman's compensation case, makes it imperative that the truth be known to the laymen who must adjust or litigate that claim, as to whether or not there is actually a causal connection between the existing pathology and the employment. A doctor may be wholly conscientious but yet be full of theories which are unacceptable to his medical brethren. The problem is to develop standards by which the lay administrator can test the right of any medical opinion to acceptance in a tribunal where true justice is to be rendered.

Our present purpose is to suggest that machinery be created whereby soundly conceived and accurately stated postulates will be developed and made available in form as simple and as practical as a dictionary or encyclopedia of cause and effect. Armed with such a scientific yardstick, it is possible that many of these theories will die still-born. Those which persist can be accurately identified. In the various branches of medicine there are conflicting theories, each with its active champions. Name the doctor, and we can tell you some of his pet theories. Thus it is that, basically, as you select the man, you are controlled by his theories. We seek a situation where we can find a statement of the controlling scientific verities and can judge the man by his acceptance or rejection of these established shibboleths.

The real difficulty in compensation practice is that

the final decision as to cause and effect, although it occurs in the field of medicine, must be made by laymen. It is our considered opinion that the practice of industrial medicine, involving as it does the constant association with laymen, demands the creation and continued activity of some final, impartial, scientific body or bodies of competent membership to formulate postulates as to cause and effect which remain valid until new research, which would be continuing, makes the contrary appear.

It is only in some such manner that both the medical and the lay man in this field can find a common, factual, scientific meeting ground for the discovery of medical verities. You will note that we are visualizing a specific, limited literature. Let the literature of entity diagnosis and treatment remain as it is, unless the new literature confined to cause and effect, suggests a change. For this reason, we urge development of the scientific research phase of industrial medicine to produce something as practical as a dictionary or encyclopedia of cause and effect to which all may look for medical verities.

An Approach to a Solution

WE WOULD be wasting your time and cheating your interest should we confine ourselves to generalizations. We recognize full well the hazards of becoming entangled in controversial details in attempting the specific. We further confess that we speak as one outside the medical profession, but still must point out that by your specialization you have elected to work with us. To the extent that our criticisms are sound, change is indicated. To the degree that we are mistaken, a duty of education arises.

Specialize in Industrial Medicine

OUR FIRST suggestion is basic. Much that we say today can be reduced to a single admonition: specialize in industrial medicine. Recognize it as the distinct field which it is and act accordingly. That part of industrial medicine which deals with occupational diseases is closely akin to public health. Communicable diseases of industrial origin or contraction may involve epidemiology. Toxicology also is included. But in spite of these common affiliations, industrial medicine plays such an important and distinctive part in the economic life of the community as to demand a recognition of the need by medical schools.

Proud as one may properly be of the degree of doctor of medicine, those who must acquire mastery of the added complexities which successful and fully effective practice of industrial medicine entails should have not only special academic preparation but distinctive academic recognition. Degrees should be given in industrial medicine. If this form of practice is to attain its proper development, a special taproot must be implanted in the basic training of the medical curricula. Convinced as we are of the necessity for this step, we would compel it were we an alumnus of such a school.

The changes we visualize thus begin at the curricula level. Upon the professional level, we urge both a group self-recognition and a vigorous program of education among your non-specialist brethren in the profession. As proof of true specialization, you would produce soundly conceived, simply stated and widely distributed appropriate literature of cause and effect. Such a specialized group would encourage, insist upon, cooperate in and report industrial medical research.

We are using the term "specialization" to identify not only a technical competency in dealing with the peculiar problems of the practice, a willingness, combined with ability, to cooperate with your lay associates and the creation of a literature basically designed to test the all important factor of industrial origin, but also a professional integrity which compels the special scientific approach in your own thinking. This mark of specialization should be demonstrated in the completeness, thoroughness and accuracy of your own industrial-connection determinations.

While conventional practice calls for the use of special forms in reporting originally upon an industrial claim, there is nothing to forbid and much to recommend the use of supplemental letter reports. At all times remember that the layman who reads your reports will be faced with conflicting evidence both in regard to the basic facts and in medical opinion involving those facts. Your own discussión should be so designed to help him understand and analyze the problem.

We recommend that every detailed report contain the following statements:

1. Personal history of the patient so far as it is medically relevant.
2. The exact history of events and the onset of symptoms as received and considered by the reporting physician.
3. Clinical findings as disclosed by an appropriate examination.
4. Whether or not x-rays have been examined, and identification by date of those interpreted.
5. Whether or not appropriate laboratory tests have been made, or reports thereon studied, identified as to contents and date as well as nature of report.
6. Diagnosis.
7. Opinion as to whether or not the pathology was caused in the manner claimed or in some other manner disclosed by your examination or history.
8. Reasons for coming to the conclusions stated by you.

By the time a case gets to the Commission, there are other and probably conflicting opinions in the record. This is where the adequacy of a report is finally tested. Such a report is, first of all, scientifically sound. If there are multiple causes for the pathology, you have discussed them and stated why you rejected some and adopt others. Few claims can be conclusively determined by a physician. Many times the evidence is conflicting. The physician therefore should present adequate discussion at the end of his report to enable the referee to evaluate the weight of the entire evidence.

A large part of the conflicting medical opinions now present in compensation cases would disappear if the reporting physicians would prepare this type of report. In any event the basic soundness of the reporter's reasoning would be readily disclosed. The report must speak clearly and accurately for you. You will not be present when the report is read to offer oral explanations which might be needed to understand, amplify or support your opinions. Anticipate this need in advance.

A Specialist's Records

THE FUNDAMENTAL distinction between a specialist and a general practitioner is in the trained and understanding approach of the former to the peculiar demands of the practice. This means that the industrial specialist appreciates the importance of recording accurately and completely the precise events involved, the time of appearance, and the nature of the various symptoms. He makes these notes in the course of his examination and does not confuse the picture by his faulty memory. The Commission has held many hear-

ings made necessary to correct the garbled history as reported by some doctor. The specialist further fully explains why he does or does not believe that there is an industrial origin or aggravation.

(A) The first requirement is standardization of terminology. Scientific industrial medicine requires a common method of description. The language used in a report must be so chosen that a series of lay minds can analyze it without confusion arising from use of multiple terms for identical situations, suggesting differences which do not exist in fact. Science is not thus loosely discussed. Standardization of a specialty must begin at the level of first patient contact and be reflected both in the attending industrial specialist's office notes and in the all important hospital charts. One who has read through a case which has had a stormy controversial passage is impressed with the inadequacy of the reporting physician's recollection of past events. One wonders if he keeps copies of former reports and re-reads them before attempting a periodical summary.

(B) The industrial specialist is responsible for the creation of adequate records in compensation cases. While certain standards have been created within the profession for hospital records, they are inadequate for the industrial specialist for at least two reasons: First, the existing formulae are not responsive to the demands of industrial medicine; and second, the number of bed-space areas in actual use is infinitely larger than the number of institutions furnishing them which are touched by existing standards.

Office and hospital records of past illnesses and confinements are of vital importance either to the patient or to the carrier to establish the true character and extent of former pathologies. It is not enough to secure adequate records only in acknowledged compensation cases. What are simple disease cases to-day, may tomorrow become involved in a claim. It is therefore imperative that all illness records be complete. We have the greatest of professional contempt for those offices and small emergency or industrial hospitals which fail so dreadfully in the all important matter of adequate record keeping. Recently we had before us a death claim. The man developed a pneumonia and subsequently died supposedly from a coronary accident. He had the misfortune to be taken to one of the smaller industrial hospitals. When the so-called chart was filed, it consisted of nothing but the nurses' notes of treatment. History, laboratory findings, clinical discoveries, signed diagnosis, all these were lacking. With no records having been made in the currency of the treatment, the doctor could and did express an opinion with no way available to either side to prove or disprove his dogmatic statements of cause and effect. This is not specialized medicine. This is not adequate hospitalization—industrial or otherwise. Yet it goes on daily.

We are now convinced that legislation is badly needed which will apply to all bed-space areas. Proper factors should be considered to classify institutions with appropriate statutory standards of recordation applying to each. Such legislation should include those elements which medical experience generally has found necessary as well as those demanded by the peculiar problems of specialized industrial medicine. We specifically ask your Association to investigate this matter and urge the appropriate legislation. In the seven months before the next regular session of the legislature ample time remains to permit the development of an adequate bill.

(C) The reports we see daily create the impression that few doctors are scientists. While the busy industrial practitioner may lack time and facilities for carrying on imposing programs of research, this is the proper field for the activity of an association of industrial specialists. Research involves both the collection and careful analysis of basic data. There are many specialty magazines within the profession. There are many agencies already in existence carrying on important but independent investigations in the fields of public health and occupational disease. Both Federal agencies and private foundations are conducting research in specific fields of medicine. All of these agencies are active but independent.

Our complaint is that the benefit of much of this work is lost because it is uncoordinated, and there is no pooling of data, and an appalling lack of reporting. It is true that individuals prepare reports containing their views or experience with isolated subjects, but this is not adequate to support a field of specialized medicine, nor the source of justifiable group pride. Your greatest contribution as an association of industrial specialists would be in working out machinery for an effective coordination among the existing agencies, in supplementing their activities and by establishing channels for the routine, automatic publication of essential reports under auspices assuring scientific impartiality and wide distribution.

Research Reservoir

THE FIRST step to the creation of scientifically accurate, impartial, readily available information concerning the effects of specific subjects as allergens, toxicity, methods of contagion and the like, lies in the use of standard terminology, and statutory standards of adequate patient records governing all bed-space areas.

The next step is the creation of a series of central research reservoirs into which standardized basic data may be channeled. Think of the wealth of information which is buried in the files of the many general hospitals, the institutional and public clinics, the archives of the various specialty associations, the research reports of the various boards of health, and other governmental agencies on all levels. All of this should be incorporated into a common pool.

The final step is the creation of a Council of Standards, or a board composed of persons of scientific attainment, who shall be and remain open minded and be qualified to determine the accuracy of proposed postulates. They should possess both the funds and authority to make further tests, studies and checks to determine the probable accuracy of the conclusions drawn when this seems indicated in a matter of basic importance. The responsibility for the issuance of authoritative reports would rest in this body. This would include the publication or authorization for publication in any manner experience would dictate of the results of their deliberation.

Any authorized person should be permitted access to the basic reserve pool of research. There would be no prohibition against individuals, as now, preparing such papers or books as they desire. The existence of an active agency of this type however, would provide a source for securing authoritative, correlated information upon desired subjects. An adequately prepared text or report would receive the appropriate approval from the agency.

We are handicapped in attempting to suggest a practical way by which this pooling of research data may be made effective. The obvious way would be to secure the administrative assistance of some institution of unquestioned scientific character either privately or governmentally supported. Such housekeep-

ing facilities might be found through the cooperative action of the leading medical colleges. Multiple copies of basic research data would be made in standardized form for filing in the central reservoir. Much of the detailed work would be the logical method for training students in industrial medicine, with supervisory and technical assistance from the membership of this and other affiliated Associations.

Sufficient advantage would result from the practical operation of such a plan to justify the efforts to achieve it. We would be interested in discovering what results a committee from this Association could obtain through a thorough exploration of ways and means among a group composed of representatives from the U. S. Public Health Service and the Bureau of Mines; the State Board of Health; the county and city boards of health; the Rockefeller and similar foundations; the leading medical schools; the county and state medical associations; the American Medical Association, and from each of the many specialty groups. Why don't you see what a common need can develop?

Group Decision

WE ASK this Association's endorsement of our suggestions as to the direction of further group development. The practical details can only be worked out as a result of careful consultation among many interested groups. We speak with the voice of bitter experience in our outline of the layman's demands from industrial specialists if they are to serve fully their lay associates.

Because of the litigation element inherent in industrial medicine, practitioners in this field owe special responsibilities to several groups. Unless and until those who treat compensation cases realize the full demands of their practice, meet them understandingly and are prepared to develop the full place of constructive leadership which is needed, you are neither specialists, nor fitted for the type of practice which you are attempting.

These be harsh words, but they come from a friend. We deny ourself the privilege of criticism until we are prepared to suggest a cure. Should the method of treatment which he has prescribed be unsound, do not reject the problem along with the proposed regime. Think this over. Why not complete the job? Either accept the responsibility and meet it, or know that others will. Whoever meets the demands of the practice, will secure it.

B-Complex Dietary Supplementation

—In Industry—

WILLIAM I. FISHBEIN,
WILLIAM TANNENBAUM,
CHARLES SHANNON

IN 1939 Stiebeling and Phipard[1] in a survey of the diets of employed workers found only 26% having good diets, 45% fair and 26% poor. If the diets had been measured by the present yardstick of the Food and Nutrition Board's recommended daily allowance, the percentage of poor diets would have been even greater. Sebrell[2] has called attention to the greater need for more thiamin under conditions of increased strain and physical activity. Sebrell also believes that it is no exaggeration to say that at least one-third of the American population is eating a diet which is not adequate in all respects.

The Committee on Diagnosis and Pathology of the Food and Nutrition Board[3] in reviewing material reported in widely scattered journals on the state of nutrition of the people of the United States concludes that an appreciable percentage of diets fail to meet more than 50% of the recommended daily allowances of the Food and Nutrition Board, but many more diets are deficient by less than 50%. This widespread prevalence of more or less deficient diets is associated with a high incidence of deficiency states, largely mild in intensity and gradual in its course. It is stated that "there is a real difference as measured in terms of growth development and general health record between optimum and just adequate nutrition; and that every practical effort should be made to apply this knowledge in the interest of human welfare."

When diets are inadequate the B-complex vitamins are especially likely to be deficient. The supplementation of an optimum diet with additional vitamins can serve no useful purpose. However, presuming that one out of every three persons is not receiving enough of the B-complex vitamins it would appear fair to assume that if a group of workers is selected and their food intake is supplemented with a vitamin B-complex preparation some improvement in health and efficiency should result. With this in mind an experiment was set up to determine the changes which might occur in health and well-being of a group of men and women doing various types of work when such supplementation of the diet is established.

Procedure

THREE hundred and eleven men and women all industrially employed were selected who volunteered to take the vitamin preparation. About half were doing heavy work while the remainder were in the white-collar classification, doing clerical and office work. Fifty-seven persons were selected during this first period to act as controls. They received a placebo which was exactly the same in size, shape and color as the B-complex capsules. The first experimental period lasted approximately three months. At the end of this period all the persons in both groups were asked to note any changes in certain physiologic characteristics. Tables I and II show the results of this first period:

TABLE I.
MEDICATION—FIRST PERIOD—TOTAL NUMBER 311

	Favorable	Unfavorable	No Change
Constipation	63	3	245
Mental alertness	75	4	232
Tiredness	122	5	184
Eye-strain	33	3	275
Number of colds	49	13	249
Other general illnesses	18	0	293
Skin eruptions	17	0	294
Appetite	152	1	158
Sleep	151	5	155

The results of the placebo group were:

TABLE II.
PLACEBO—FIRST PERIOD—TOTAL NUMBER 57

	Favorable	Unfavorable	No Change
Constipation	7	0	50
Mental alertness	15	1	41
Tiredness	13	1	43
Eye-strain	7	0	50
Number of colds	8	1	48
Other general illnesses	6	1	50
Skin eruptions	6	1	50
Appetite	22	1	34
Sleeep	22	2	33

Converting both groups to a percentage basis for comparison we have:

Bexel, used in this experiment, was supplied by McKesson & Robbins, Inc., Bridgeport, Connecticut, who also contributed funds to defray the cost of the work. The formula of Bexel is: Thiamine hydrochloride (B_1), 333 units; Riboflavin (G), 1 milligram (1000 micrograms); Pantothenic acid, 0.196 milligrams (196 micrograms); Niacin, 5 milligrams; Pyridoxine hydrochloride (B_6), 0.130 milligrams (130 micrograms).

TABLE III.
FIRST PERIOD—PERCENTAGES

	Medication			Placebo		
	Fav.	Unfav.	Unch.	Fav.	Unfav.	Unch.
Constipation	20	1	79	12	0	88
Mental alertness	24	1	75	26	2	72
Tiredness	39	2	59	23	2	75
Eye-strain	11	1	88	12	0	88
Number of colds	16	4	80	14	2	84
Other general illnesses	6	0	94	10	2	88
Skin eruptions	6	0	94	10	2	88
Appetite	49	0	51	39	2	59
Sleep	49	1	50	39	3	58

Both groups showed a larger favorable than unfavorable change. The fact that the placebo group did register favorable changes must be attributed to the psychological effect. The residual increase, then, could be attributed to the medication effect.

In the case of constipation 12% showed a favorable increase in the placebo group; 20% showed a favorable increase in the medication group. Approximately 8% then could be adduced as the true medication effect. Mental alertness was practically the same in both groups. Tiredness had a residual favorable effect of 16%. Eye-strain and number of colds were practically unchanged. In other general illnesses and skin eruptions the numbers were so small as to be not significant. Appetite and sleep had residual effects of 10% each.

After the results had been tabulated both groups were completely reversed. Now the group which had received medication was given placebo and the placebo group given medication. It was hoped that this reversal would iron out accidental results in the first period. The same questions were then put to the volunteers with the following answers:

TABLE IV.
SECOND PERIOD

	Medication			Placebo		
	Total Number 47			Total Number 181		
	Fav.	Unfav.	Unch.	Fav.	Unfav.	Unch.
Constipation	7	0	31	26	2	172
Mental alertness	6	2	30	32	4	164
Tiredness	6	1	31	41	4	155
Eye-strain	5	1	32	9	3	188
Number of colds	6	1	31	17	6	177
Other general illnesses	5	0	33	8	0	192
Skin eruptions	6	0	32	3	1	196
Appetite	10	0	28	62	0	138
Sleep	10	0	28	60	0	140

There was a considerable loss in number by the time the second period was complete, mostly due to changes in personnel in the firms. Of the 368 who answered the questions after the first period 238 finally completed the experiment.

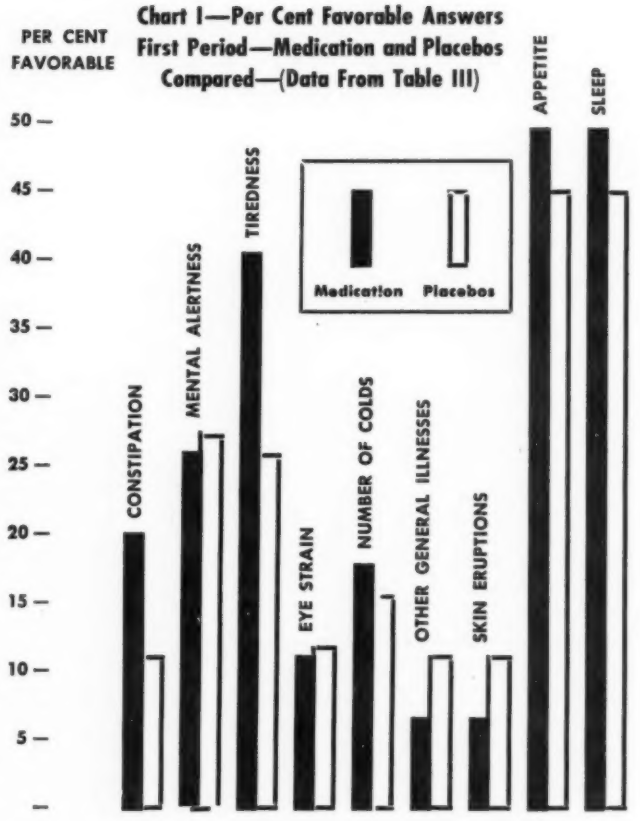
Converting the following table to a percentage basis for comparison gives the following:

TABLE V.
SECOND PERIOD—PERCENTAGES

	Medication			Placebo		
	Fav.	Unfav.	Unch.	Fav.	Unfav.	Unch.
Constipation	18	0	82	13	1	86
Mental alertness	16	5	79	18	2	80
Tiredness	16	2	82	21	2	77
Eye-strain	13	3	84	5	1	94
Number of colds	16	2	82	9	3	88
Other general illnesses	13	0	87	4	0	96
Skin eruptions	16	0	84	1	1	98
Appetite	26	0	74	31	0	69
Sleep	26	0	74	30	0	15

Comparing the two groups it is found that constipation, eye-strain, number of colds, other general illnesses and skin eruptions register favorable differences, while mental alertness, tiredness, appetite and sleep show

Chart I—Per Cent Favorable Answers First Period—Medication and Placebos Compared—(Data From Table III)



minus differences, difficult to explain unless the total numbers in this last period were reduced to such an extent as to fail to reveal significant changes.

Another method of approach is to follow each of the groups through both periods. The results of the group originally receiving medication are as follows expressed in percentages:

TABLE VI.

	First Period			Second Period		
	Medication			Placebo		
	Fav.	Unfav.	Unch.	Fav.	Unfav.	Unch.
Constipation	20	1	79	13	1	86
Mental alertness	24	1	75	18	2	80
Tiredness	39	2	59	21	2	77
Eye-strain	11	1	88	5	1	94
Number of colds	16	4	80	9	3	88
Other general illnesses	6	0	94	4	0	96
Skin eruptions	6	0	94	1	1	98
Appetite	49	0	51	31	0	69
Sleep	49	1	50	30	0	15

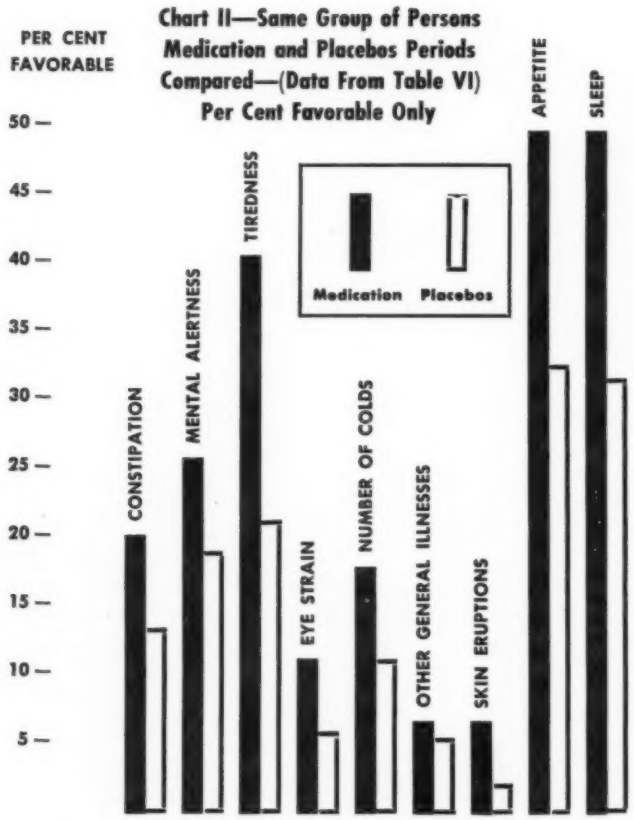
There were decreases all along the line, owing to discontinuance of medication, although the psychological effect was still considerable in some items.

The other group, on the other hand, reveals some interesting differences:

TABLE VII.

	First Period			Second Period		
	Placebo			Medication		
	Fav.	Unfav.	Unch.	Fav.	Unfav.	Unch.
Constipation	12	0	88	18	0	82
Mental alertness	26	2	72	16	5	79
Tiredness	23	2	75	16	2	82
Eye-strain	12	0	88	13	3	84
Number of colds	14	2	84	16	2	82
Other general illnesses	10	2	88	13	0	87
Skin eruptions	10	2	88	16	0	84
Appetite	39	2	59	26	0	74
Sleep	39	3	58	26	0	74

While the numbers that make up the frequencies of the above table are admittedly small, nevertheless, the differences between the favorable changes with the



placebo and those with medication are too consistent to be accidental. Whereas in Table VI the percent favorable column showed a lower proportion favorable for every item in the second period, in the above table constipation, eye-strain, number of colds, other general illnesses and skin eruptions actually show increases when the group changed from placebo to medication. Perhaps with a larger group than was used here the other factors, too, would have shown the same favorable difference.

If the numbers in the columns from which Table VI was derived are totalled the following is obtained:

TABLE VIII.
TOTAL FAVORABLE, UNFAVORABLE AND UNCHANGED—NUMBERS

	Medication	Placebo	To ta
Favorable	377	136	513
Unfavorable	28	20	48
Unchanged	1772	1244	3016
Total	2177	1400	3577

Computation of chi-square values for a test of significance gives 40.097, a figure far below the 1% level of significancé in the chi-square tables for $N = 4$. It can be concluded, then, that the population of facts in the placebo period was significantly different from that of the first or medication period. This difference could not happen by chance.

Discussion

IT IS recognized that persons taking vitamin preparations may believe that an improvement in health and well-being occurs, due merely to the psychologic effect of medication. An attempt was made in this experiment to control the psychologic factor by using a group receiving placebos as controls. The excess in the number of persons in the group receiving the vitamins over those receiving the placebo who manifested improvement can be taken as an indication of the actual effect of the vitamins on such conditions as constipation and fatigue. The effects on mental alertness, appetite and sleep also would appear to be of some importance. It is not to be believed that the use of the vitamins would in any way alter susceptibility to colds or skin eruptions. An indirect effect on other general illnesses might be anticipated. The close relationship of the condition of the eyes to riboflavin also might indicate the value of the B-complex in the prevention of visual disturbances. The workers selected for this study did not exhibit any manifest symptoms of vitamin deficiency. Nevertheless it would appear that some improvement in the various conditions named did occur as a result of the vitamin supplementation.

Conclusions

THE results of this study demonstrated that supplementation of average diets with vitamin B-complex had a favorable effect in the reduction of constipation and fatigue. It also indicated a beneficial effect on mental alertness, appetite and sleep. It may also have some value in relation to eye-strain.

References

1. Diets of Families of Employed Wage Earners and Clerical Workers in Cities. Circular 507, U. S. Dept. of Agriculture, January, 1939.
2. Urgent Problems in Nutrition for National Betterment. *Am. J. Pub. Health*, 32: 15 January, 1942.
3. Report of the Committee on Diagnosis and Pathology, Food and Nutrition Board, National Research Council, No. 109, November, 1943.

Three Deaths from TNT (Trinitrotoluene) Poisoning

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ALTHOUGH thousands of cases of dermatitis occur in ordnance plants, very few cases of serious illness or death have resulted, owing to the vigilance and excellent work of prevention by industrial physicians and engineers who have reduced the hazards of TNT poisoning to a minimum.

Trinitrotoluene may gain entrance into the blood stream by absorption through the skin, lungs or gastrointestinal tract. Unless masks are worn, fine dust and fumes will reach the mucous membrane of the nose and mouth and may be swallowed with the saliva or with the mucous secretions. Legge,[1] Moore,[2] and Voegtlin, Hooper and Johnson[3] agree that the skin is the most important portal of entry. Great variations in absorption of the TNT were noticed among different individuals. Barnes[4] attributed this permeability to an oily skin, and Livingstone-Learmouth and Cunningham[5] believed that excessive sweat, favored the absorption. The absorption takes place most readily through those parts of the skin which are not protectively covered, such as the palms of the hands, neck and face and the ankle region. The type of absorption would depend largely upon the kind of operation in which a worker is engaged. Where a large amount of fine dust appears in the air, it would favor inhalation, while a worker handling TNT where only a small amount of dust is raised would have direct contact with the chemical. This condition was indicated in the papers published by Gregorson and Taylor,[6] Lewin,[7] and Fortescue.[8]

Toxicologic studies with different species of animals have shown a great variety of symptoms. This has been attributed by Voegtlin, Hooper and Johnson[9] to a divergence in the ability of the organism to alter the TNT. Dambleff[10] found no toxic effects from absorption through the shaved skin in rabbits, while Wyon[11] thought it to be moderately toxic to rabbits. His animals presented a blood picture similar to that

seen in the early stages of an aplastic anemia. Haythorn[12] noted liver lesions in his animals, after oral and percutaneous administration, similar to those found in man. The urine showed the presence of methemoglobin. Voegtlin, Hooper and Johnson[9] found that cats were most sensitive to TNT. Small doses were fatal to cats in Wyon's[11] research, who also observed that after large single doses a degeneration of the liver developed. Experiments with dogs have given a variety of results, some claiming no liver damage while others report areas of central necrosis. Kramer and Meierhof[13] reported that oral, percutaneous and subcutaneous administration of TNT resulted in diarrhea, weakness, depression, emaciation; and, in regard to the blood picture, polychromasia, nucleated red blood cells, leucocytosis, and in one instance lymphocytosis. In bone marrow, spleen, and lymph nodes there were hemosiderin deposits. Voegtlin, Hooper and Johnson[9] found cyanosis, methemoglobinemia, choluria, dyspnea, incoordination, and salivation. All dogs become anemic and six developed jaundice. These animals showed no signs of acute yellow atrophy of the liver and it appears that the icterus was of hemolytic origin. With human beings the question of toxicity has had similar discrepancies, some claiming that it was a contamination of the TNT and that the pure chemical did not cause toxic reactions. Koelsch[14] and Fortescue[8] were advocates of the claim that pure TNT did not cause illness, while Moore[2] was very certain that pure TNT would cause toxic reactions.

The symptoms of TNT poisoning may be divided into two groups, the irritant and the toxic. The symptoms of irritation occur in the respiratory and gastrointestinal tracts and upon the skin. Local irritation affects the eyes and nose, produces a cough, bitter taste, and there may be eructations, colic, nausea and vomiting. At first there is constipation, later diarrhea and tenesmus. The most noticeable effect is upon the skin to which it imparts a yellow color and workers are frequently referred to as "canaries" because of this condition. In addition to the yellow color of the skin there may be itching and sometimes a contact dermatitis appears. The hair of blondes seems to be more affected than any other, becoming markedly yellow. Some persons seem more susceptible to developing a dermatitis than others. During hot weather perspiration has a tendency to increase its action, resulting in a greater number of cases of dermatitis. The canary yellow color of the skin disappears rapidly when workers leave the source of exposure. Young persons seem to be more susceptible to the irritant action upon the skin. An interesting case was seen in one ordnance plant in a man who was trucking boxes containing land-mines and other forms of ammunition, on which particles of dust had settled. Where his ankles came in contact with the dust, a severe dermatitis resulted which was probably aggravated by mechanical friction. Occasionally there is bleeding and running of the nose, headache, nervousness, tiredness, paleness, loss of appetite. Where a considerable amount of dust is inhaled, the throat becomes raw and constricted. The sputum is thick, yellow, and of a bitter taste. Pain develops in the region of the liver and stomach. In severe poisoning there is generalized weakness, flushing of the face, light-to-fading cyanosis, difficulty in breathing, and swelling of the hands and feet. The patient may become depressed, with a peripheral neuritis. There is inclination to icterus, sweating, unconsciousness, cramps and heart throbbing. The most serious condition is a degenerative hepatitis, which is very much like that found in phosphorus poisoning. When the individual has reached the stage of a toxic jaundice due to the liver condition, recovery is exceptional. During the time men are exposed to TNT dust, the chemical may be recovered unchanged from the feces and is, in all probability, present in most cases of poisoning. Its presence in the urine may be shown by liberating with acid from the compound in which it is fixed, when it may be revealed by its ordinary reaction. According to Lewin[7] it is partly changed and in rabbits it is excreted as ethereal sulfate. It is in portion reduced to 2, 6-di-nitro-4-hydroxylamine-1-toluene which is fractionally excreted in the urine in conjugation with glucuronic acid and may be further partly changed and excreted as 2, 4-di-nitro-4-azoxy-toluene. Chemical tests failed to show the presence of TNT in the liver or kidneys in death cases examined by me.

Blood Changes

THE BLOOD picture may show considerable variation in workers in TNT, depending upon the intensity of the exposure and the length of time they may have been employed on a particular job. An anemia is found due to the destruction of red blood cells and lowering of the hemoglobin, having the appearance of an aplastic anemia similar to that seen in benzol poisoning and purpura. In several cases the blood examination revealed a lymphocytosis. A routine check is made by the laboratories of ordnance plants as to the amount of red blood cells, hemoglobin and percentage of methemoglobin in both the TNT and tetryl workers. The gradual absorption of TNT is shown by the pallor of the face and the ashen color of the lips. Sometimes, owing to the excitement of a medical examination, a flushing of the face may mask this color. The trained industrial physician, walking through an ordnance plant, can pick out those suffering from acute poisoning by observing cyanosis of the lips and ears. The blood changes occur independently of the liver changes. Voegtlin, Hooper and Johnson[9] noted that in 72.5% of 237 workers examined, there were no signs of an anemia, and from the observation of Panton[15] it appears this condition may be more frequent in cold weather. The peculiar change in color appears to be partly due to the formation of methemoglobin. Two theories have been advanced regarding the origin of the anemia. Some investigators believe the liver injury to be the primary source, while others assume that the destruction of the red blood cells is the cause of the icterus, which, therefore is of hemolytic origin. The anemia may be associated with anisocytosis and poikilocytosis, polychromatophilia, nucleated red blood cells, stippled cells and eosinophilia. According to Minot[16] the blood platelets are usually increased, but this may vary with different phases of the poisoning. In addition to those found in the red blood cells, various changes may be likewise noted in the white blood cells such as leucocytosis and in some a leucopenia. The anemia may become very severe with a hemoglobin as low as 28% and red blood cells of 1,225,000; the white blood cells may vary from 2,800 to 14,650.

Young individuals entering dust-laden rooms may complain of dizziness, headache, fatigue and drowsiness. Serious damage to the kidneys may result, albumen, casts and bile pigment may be present, the latter even in the absence of detectable jaundice, which may be considered as good evidence of beginning injury. In the fatal cases delirium, convulsions and coma may come on within three weeks of the appearance of the jaundice. The jaundice seldom appears before the fourth week of exposure and frequently develops without previous warning. It may be conjunctival or general in character. On percussion the liver area may be

tender. Ascites was not present in the cases which I am reporting. When death has resulted, the worker having been away from the plant for several days, the urine and the kidney fail to show the presence of TNT.

For the detection of possible exposure to TNT, the Webster test may be applied to the urine or the modification of Snyder and von Oettingen.[17]

As previously mentioned, only a small number of people from many thousands engaged in the manufacture of and in filling of shells, bombs, land-mines and other explosives, have shown signs of toxic jaundice. Emphasis should be placed on the importance of an initial physical examination of prospective workers in tetryl or TNT to rule out the possible existence of a latent disease. In my experience I have already encountered one case in which diabetes was claimed to have been allegedly caused by TNT poisoning. This case came before the Industrial Commission in Illinois, but the plaintiff lost. In another instance a myelogenous leukemia was claimed to have been caused by this poisoning. Death may result from 10 days to three weeks after the first appearance of the jaundice. The worker has symptoms of an influenza as he leaves the plant, which may be followed by a severe hemorrhage from the nose and mouth, and petechiae on the face, arms and neck, as in Case 2.

Postmortem Appearance

ONE of the striking features found at autopsy is the atrophy of the liver, the organ being reduced to one-half its normal weight. The outer surface is usually smooth, reddish in color with slightly elevated gamboge-colored areas, pin-point to walnut in size. On section the red area in the tissue is smooth and firm; the normal lobular pattern is absent. In the elevated yellow areas the tissue is slightly raised and soft and an indistinct lobulation is visible, the lobules being larger than usual. It is from this peculiar gamboge-colored area that one is able to detect a TNT poisoning. Bile in the gall-bladder may be unusually thick. The kidneys on section are found to be enlarged and icteric. The cortex bulges and the labyrinths are frequently conspicuously yellow. There is considerable engorgement of the pyramids. The heart on section is pale, soft and flabby. Petechial and diffuse hemorrhages have been observed in the skin (case previously reported) and in other parts of the body.

Cases

CASE 1. E. G., age 20. Worked for four months with TNT on the loading line and developed the usual symptoms with an icteric cast of the skin and had pain in the region of the liver. He left his place of employment, became progressively worse, could not retain any food on his stomach, and had nausea and vomiting. The jaundice increased and the patient died two weeks after he left the plant.

The liver and kidneys were sent to me for examination. Marked atrophy of the liver was present, the outer surface was smooth, reddish in color with slightly elevated gamboge areas, some as large as one and one-half inches in diameter. On section these gamboge areas were found to be soft and did not extend for more than a centimeter below the surface. Microscopically, there was a marked necrosis of the central lobular cells noted, with an intense round cell infiltration of the stroma between the lobules. In some cases the entire lobule was destroyed and there was an attempt at peripheral duct proliferation. On section, the kidney was found to be icteric, the cortex bulged and there was considerable enlargement of the pyramids. Microscopically, there was a degeneration of the cells of the proximal and convoluted tubules with some swelling of the glomeruli.

CASE 2. J. H., age 45. Began working October 7, 1942, on a load line in a particular spot where toxic materials were prevalent. He continued working there until March 15, 1943, when he was temporarily laid off. He returned to work on March 30 and remained until June 23 at the same job until he became ill. He was then transferred to the shipping building with no further exposure to toxic materials. He worked there until July 16 when he again became very ill, was taken to a hospital, and died on July 24.

When a blood count was first made three weeks after exposure, his hemoglobin was 80%, red blood cells 4,310,000, white blood cells 10,150. The patient was removed from the toxic materials on March 3, 1943, when the red blood cell count had dropped to 3,900,000 and the hemoglobin to 64%. He remained at home for two weeks, and was given ferrous sulfate three times daily after which time he returned to work. On March 29 the red blood count was 4,702,000 and hemoglobin 90%. On May 11 the red blood cell count was 4,390,000, hemoglobin 78%. June 15, the red blood cells were 3,460,000, hemoglobin 69.2%. Eight days later the red blood cell count was rechecked and found to be 3,610,000, hemoglobin 59.2. He was immediately removed from all toxic exposure although at this time there were no complaints. He was again placed on iron therapy for two weeks; this medication, however, had very little effect upon his red blood cells which now had dropped to 3,270,000 and white blood cells to 2,700. With such low blood count a serious mistake was made in permitting this man to resume working. He worked for five days, then developed acute cramps and diarrhea after drinking a bottle of milk. The red cell count made on July 16, 1943, was 3,170,000, hemoglobin 45%. Differential count: polys 11%, lymphocytes 88%, monocytes 1%. At this time his chief complaints were weakness and a sore throat.

Physical examination revealed a fairly well nourished man of 45 years of age, moderately cyanotic, but not appearing especially ill. There was swelling in the submaxillary lymph nodes. Several large hemorrhagic swollen areas were found in the throat and around the fauces. Gums were swollen and hemorrhagic, with a dirty grey film between gums and teeth. Temperature was 101°F. Heart was regular, not enlarged; no mummurs were present. Lungs were clear. Liver and spleen were not enlarged. No jaundice was present. Abdomen was soft. There were a few hemorrhagic specks over the legs. Reflexes were normal. Past, family and marital histories were without significance.

Autopsy performed on July 24 revealed a man about 5 feet 10½ inches long, weight about 160 pounds, age 45 years. There was present a profound general icterus. There was a small partially healed herpetic lesion on the left corner of the mouth, about one-half inch in diameter. Over the right femur, about seven inches below the brim of the pelvis there was a four-inch macerated skin area. Over the left buttocks there was a three-inch macerated lesion that had been incised and exuded blood and gas. Postmortem lividity was prominent over the back. On both anterior elbow regions there were ecchymotic areas indicating performance of blood transfusions.

The pericardial sac contained about 40 cc. of a hemorrhagic fluid. In the right side of the heart both the right auricle and ventricle were found practically free from blood. There was a small amount of fluid present, also gas bubbles were seen. It was noted that the organs of the chest, heart and lungs showed a deep icteric discoloration. Several large lymphatic nodes were seen around the right bronchus. These nodes on incision were found to be anthracotic.

All the abdominal viscera were tinged yellow. A few enlarged lymphathic nodes were seen in the mesentery. Pressure on the gall-bladder revealed that the extrahepatic biliary passages were open. The stomach was distended considerably with a greenish fluid. The mucosa of the stomach was flattened in places, indicative of an old atrophic gastritis.

From the general appearance of the heart wall and the intima of the aorta with the presence of gas, it appeared to be a septic condition of gas bacillus origin.

The upper portion of the left lung was emphysematous. The lower portion showed hypostasis and edema. The upper portion of the right lung and middle lobe were emphysematous.

The cortex of the kidney was wrinkled and the glomeruli were for the most part shrunken and stained poorly. In several places two to three glomeruli presented evidences of advanced fibrous change, and the connective tissue ingrowth was old and partly hyalinized. Most of the tubules of the kidney stained poorly, and those of the convoluted variety showed extensive desquamation and at least 10% of them contained ghosts of red blood cells. In the medullary part of the kidney the collecting tubules were indistinct, and between them the tissue was edematous. The changes were thus chiefly of two types: There was a slight chronic process characterized by glomerular changes in the form of fibrous replacement not associated with accompanying infiltration of inflammatory cells. This condition is compatible with slight arteriosclerosis. The second change is far more extensive and more acute and consists of tubular necrosis and edema of the interstitial tissue. These changes are accompanied by hemorrhage into the collecting tubules and more especially in those of the convoluted variety. The liver was somewhat enlarged. The gall-bladder was distended with a thick greenish bile; there were no stones. There were numerous circular mottled changes under the capsule similar to those seen in the heart. On cut section these small circular areas were seen throughout the entire liver. The cut section was quite smooth and icteric. Microscopic examination of the liver showed multiple focal necrosis mostly starting around the very small blood vessels, the process being an intense perivascular infiltration of lymphocytes and distortion in shape of the normal liver cells. The capsule of the liver was elevated and there were a few areas of necrosis under it. The pancreas was normal in size and icteric. This case of TNT poisoning was complicated by a gas bacillus infection.

CASE 3. J. R., age 46. Began work on February 28, 1942, as a nitrate operator. His work consisted of loading and unloading nitrate pre-heaters. He also dumped TNT one day a week until the nitrate pre-heaters were discontinued, when he continued dumping TNT steadily. He was off one week in July and one week in November because of illness. Examination of the patient at the plant hospital on November 7, 1942, showed essentially normal findings. The methemoglobin was 3.1%, showing very slight TNT absorption. On November 23 he returned to the hospital complaining of pain in the chest and shoulders extending down the arms and back. The condition was diagnosed as angina pectoris and the patient remained away from work for one week.

His attendance was fairly regular until April, 1943. During the month of April he was off from work for five days and worked until May 23, 1943, at which time he became nauseated and vomited. He entered a hospital on May 30 and was examined by Dr. G. O. Solem. A history was elicited that he had a known hypertension for a number of years, with the blood pressure ranging around 180. Six months previously he experienced an attack of dizziness, nausea and vomiting. At this time he complained of a pain in the chest which seemed localized to the right of the sternum about the second rib.

Physical examination revealed a patient who appeared ill; the face was edematous. There was a peculiar purplish discoloration of the lips and mucous membrane which faded rather rapidly while he was in the hospital. The mucous membrane of the mouth was red and there was a diffuse erosion of the soft palate. Gum margins around several teeth were of a greyish-white color with a tendency to ulceration. The ulcerations in the mouth became localized and had the appearance of a severe mercurial stomatitis. This condition was still present when the patient left the hospital. Chest was symmetrical on percussion; no abnormalities were found. The breath sounds were slightly increased but no rales were heard. Heart tones were regular, rate 108. There was a soft systolic murmur at the base. The abdomen was negative with the exception of a large liver which was palpable three fingers below the costal margin, being soft, and somewhat tender. The temperature varied between 100.6 and 102 during his entire stay in the hospital. The pulse rate was reduced after the fourth day. The urine showed a faint trace of albumen, few leucocytes and a few red cells. The red blood cell count was 3,530,000, white cell count 8,700, hemoglobin 66%; the differential count showed no abnormal findings. A smear made with secretions from the gums showed a few fusiforms, but no spirochetes. The family physician made a diagnosis of a toxic hepatitis which could have been due to TNT poisoning. The patient expired on June 20, 1943.

Portions of the liver, kidney, pancreas, and spleen were submitted for examination. A chemical examination of the liver and kidney failed to show the presence of TNT. Microscopical examination of sections of the liver showed that the liver was involved in a series of changes principally of a cirrhotic nature. The triad regions were broadened by an increase of fibrous tissue in which were small islands of liver cord cells. The entire triad zone was heavily infiltrated with lymphocytes. The central part of most lobules showed extensive degeneration with necrosis of cord cells, especially close to the central vein. There was a proliferation and crowding of the cells lining the sinusoids close to the central veins. In many places these cells had fallen into the sinusoids, imparting to them a highly cellular character. The red cells stained in a polychromatic manner also. In the more peripheral parts of the lobules, the better preserved cells contained canaliculi which were overdistended with bile. There were also occasional bile-cysts which were two to seven times the size of a liver cell.

PANCREAS: The pancreatic acini were altered by heavy fibrous bands of connective tissue which encircled lobules and individual acini. The connective tissue was most dense around the larger ducts. It approached the islands of Langerhans which appeared slightly shrunken but otherwise unchanged.

KIDNEY: The kidney had numerous radiating zones of lymphocytic infiltration. These extended throughout both cortex and medulla and in some places were 250 cells broad. In these zones many glomeruli were hyalinized or partly altered in this manner. The glomeruli outside of these regions were fairly well preserved, but many of the convoluted tubules had shed their lining cells into the lumen. A few collecting tubules also contain hyaline casts.

SPLEEN: The large arteries were moderately thickened as were also the small arteries of the Malpighian bodies. The Malpighian bodies were large and flowed together at their borders. Scattered throughout the reticulo-endothelium were granules of brown pigmentation. In some places these almost filled the cells, while in others they were scattered singly.

SUMMARY: A chemical examination of tissue removed at autopsy failed to show the presence of trinitrotoluene. The most prominent features of trinitrotoluene poisoning are the changes found in the blood, the jaundice, degenerative hepatitis, the liver being reduced to one-half its normal weight and the kidney damage.

Bibliography

1. LEGGE, T. M.: Great Britain Ann. Rept. of Chief Inspector of Factories and Workshops, 23, 1917.
2. MOORE, B.: Med. Research Council Brit. Special Rept., Series No. 11, Canston and Sons, London, 1917.
3. VOEGTLIN, C., HOOPER, C. W., and JOHNSTON, J. M.: U. S. Public Health Repts. 34, 1307, 1919.
4. BARNES, J. A.: *Proc. Roy. Soc. Med.*, 10, 84, 1916-17.
5. LIVINGSTONE-LEARMOUTH, A., and CUNNINGHAM, B. M.: *Lancet* 2, 261, 1916.
6. GREGORSON, A. W., and TAYLOR, F. E.: *Glasgow Med. J.*, 90, 65, 1918.
7. LEWIN, L.: *Arch. exper. Path. Pharmakol.*, 89, 340, 1921.
8. FORTESCUE, T. A.: *U. S. Naval Med. Bull.*, 25, 491, 1927.
9. VOEGTLIN, C., HOOPER, C. W., and JOHNSON, J. M.: *J. Indust. Hyg.*, 3, 239, 280, 1921-22.
10. DAMBLEFF, J.: Ianug. Dissert., Wurzburg, 1908.
11. WYON, G. A.: Med. Research Council Brit., Special Rept. Series, No. 58, 32, 1921.
12. HAYTHORN, S. R.: *J. Indust. Hyg.*, 2, 298, 1920-21.
13. KRAMER, R., and MEIERHOF, H.: *Proc. Soc. Exper. Biol. Med.*, 15, 134, 1917-18.
14. KOELSCH, F.: *Zentralbl. Gewerbehyg. Unfall.*, 5, 60, 65, 98, 109, 142, 1917; *ibid.*, 5, 185, 1917.
15. PANTON, P. N.: *Lancet* 2, 77, 1917.
16. MINOT, G. R.: *J. Indust. Hyg.*, 1, 301, 1919-20.
17. SNYDER, R. K., and VON OETTINGEN, W. F.: *J.A.M.A.*, 123:4, 1943.

Questions and Answers

Book Critique by

C. O. SAPPINGTON, M.D., Dr. P.H.

ONE THOUSAND AND TWENTY-ONE ANSWERS TO INDUSTRIAL HEALTH AND SAFETY PROBLEMS. Edited by JACK E. WEISS, Editor, *Occupational Hazards*, and associates. Cloth, 699 pp. plus x, price $10.00. Occupational Hazards, Inc., Cleveland, Ohio, 1943.

THIS is a formidable looking book, apparently designed mainly for the use of employers and safety engineers, though others find it interesting.

In a compilation such as this, it is inevitable that certain "short cuts" be productive of statements which in some instances are errors, in other instances are ambiguous, and in still others are inclusive of unintentional contradictions. Short cuts are always dangerous to veracity and cannot by any means be undertaken by everyone, no matter how accomplished, unless a great deal of routine has been practiced and unless a comprehensive understanding of details is used as a basis for such methods.

The material in the book has the semblance of authority, primarily because of the use of very good references, which are carefully arranged at various intervals throughout the text, on industrial hygiene and health aspects of the volume, but not in specific detail with respect to the safety material, a list of organizations being included in lieu of references. The bibliography includes books and articles of a highly technical nature and would be of questionable value to the uninitiated. Nevertheless the citations are of importance even for the sake of knowing that such publications are actually in existence.

It was the impression of the reviewer that the material expressed the sentiment that almost all exposures in industry are harmful—perhaps it is best to be on the safe side, particularly when appealing to persons who have little or no practical experience in this direction. However this does not justify "sweeping" statements or generalizations. Moreover, management is quite gullible, especially these days, concerning matters of industrial health. We have recently commented on this aspect of industrial health administration elsewhere to this effect: "Management of small and medium sized plants is often unaware of what its employed group should have and, therefore, avidly accepts proferred advice without regard to authenticity or experience." It seems obvious that great care must be given to the selection of material which is offered to management, lest erroneous impressions be conveyed and management and labor both be put in an embarrassing position. Furthermore, the medicolegal implications involved seem to have presented considerable difficulty in the past, and it is not wholly unexpected that such difficulties will be greater in the future.

The circular accompanying the book contains some statements which are apparently good advertising, but rather out of line with the facts: "At last one well illustrated book that will answer *all* your heath and safety problems." This is clearly a "large order" and it must be evident that no one book can ever answer *all* of anyone's health and safety problems, otherwise progressive changes could not be anticipated. One is reminded of the visit of Sir Thomas Oliver to this country some 25 years ago, at which time he said that American industry represented a *pot pourri* of chemical problems—if this was true 25 years ago, it is more impressive today with new discoveries and applications to the chemistry of industry.

There are some statements in the text with which the reviewer and other contemporaries could not reasonably agree. Thus:

"Wounds in the skin from a blow, friction or pressure, lend themselves not only to bacterial infections, but it is thought that they constitute a cancer hazard."

In answer to the question "Can occupational and non-occupational skin diseases be differentiated?" the answer of this book is "Yes. In such cases patch testing by a skin specialist is imperative in determining the correct diagnosis."

"Two very familiar examples of hazardous fumes are: . . . . (2) the exhaust smoke of an automobile burning anti-knock tetraethyl lead gasoline, in which the fumes are composed of lead particles in suspension."

"Gastric ulcers are frequent in chronic plumbism."

In the classification of industrial health hazards, the statement occurs "those that produce rapid or only slightly delayed symptoms, like sudden high concentrations of *factory dusts which may produce asthma or pneumonia*." (Italics ours.) This is the kind of statement that makes employers "jittery," what with all the trouble that has been experienced with exaggerated dust exposures. Pneumonia, of course, is a germ disease produced by specific types of bacteria, and is never produced by any kind of dust.

As an example of contradiction, on page 47, the statement occurs "pure aluminum is non-toxic." On the next page, the statement occurs "*all* metals, alloys or compounds have some harmful properties if present in the body in abnormal amounts."

On page 94, the following statement occurs concerning metabolism: "Metabolism is nothing more than the combustion or destruction of muscle." This hardly agrees with the definition from Dorland's dictionary: "The sum of all the physical and chemical processes by which living organized substance is produced and maintained, and also the transformation by which energy is made available for the use of the organism."

It is but natural that differences in spelling might occur, but preference should be given in a volume of this sort to one kind of spelling—for example, on page 166 "trichlorethylene" is found, while on the opposite page (167) the word "trichloroethylene" occurs.

On page 172, the chemical formula for benzol is represented as CH_6H_6, while as all chemists know the correct formula is C_6H_6.

It is commendable that the editors saw fit to distinguish between an exposure and a hazard, which frequently is not done. The statement on page 243 reads: "An exposure is an abnormal condition of work in which workers use a material, operate a process, or breathe workroom air, any or all of which may result in the development of an occupational disease." (This is really a potential hazard.) "An exposure becomes a hazard only if it is sufficient in quality or quantity to cause a worker to develop an occupational disease within a certain length of time. An exposure can be serious and still not constitute a hazard as long as by means of engineering control methods it is kept from doing injury to the worker. The health of the industrial worker can be so protected by proper and adequate controls that almost every kind of poisonous or nuisance substance used in or resulting from operations can be safely handled." (We would object to the use of the expression "an exposure is an abnormal condition of work" because it is generally believed that an exposure is always occasioned when doing the regular routine of manufacturing processes and using the materials necessary in the normal operations of manufacturing — all exposures are not hazards, but necessarily all hazards are exposures of a hazardous nature).

The above constructive criticisms refer to some of the items which were noted by the reviewer. There are others, of less importance.

The book is ingeniously divided into sections concerning skin diseases, dust hazards, metal poisoning, toxic gases and vapors, solvents, miscellaneous exposures, controls for air-borne industrial hazards, safety administration, personal protective equipment, mechanical safety, tool protection, plant safety, supplemented by record forms, and the classification of potential hazards by chief industries and by occupations, with a well developed index. An unusual feature is the enclosure in a back-cover pocket of an equipment guide, in which standard types of safety and health equipment are advertised.

The 375 illustrations are excellent reproductions and constitute probably one of the best collections of photographs of this sort every gathered. These are very well arranged in groups following the text material at certain intervals. It is not easy to provide appropriate captions for cuts in any book, and sometimes a mistaken impression is gained by looking at the photograph and reading the caption: for example, Sec. D plate 30,

in the lower figure, has a caption which reads: "Sulphur dioxide gas is formed by any process where sulphur-containing substances are burned or oxidized. Here a stove test is being made before stove-cleaners are permitted to enter." In the photograph, a carbon monoxide indicator is being used. Another similar example is found in Sec. E plate 40, the lower figure showing a physician taking the blood pressure of an employee, while the caption reads "Workers with abnormalities of the blood should not be permitted to work where benzol is present." Unless specific research studies are made, blood pressure readings have no significance with regard to the chemical action of benzol on the blood elements.

The record forms of which there are a considerable number pertain to safety procedures, although there is one physical examination report form containing the usual items, and two types of medical file records.

There is a tremendous amount of information in this volume and it required a great deal of time, effort and concentration to bring it together. Its chief value lies in its appeal to non-professional people, mainly industrialists and safety engineers who are usually not well informed as to the technical aspects of industrial medicine, hygiene, and health. The application of the information in certain respects at least will be somewhat limited by the ability of the reader to use discrimination in selecting the pertinent and authoritative statements adaptable to his own peculiar problems—as is, of course, true with any source of knowledge. In other words, one does not become expert merely by reading a book.

Occupational Placement Studies

Book Review by

C. O. SAPPINGTON, M.D., Dr. P.H.

PHYSICAL DEMANDS AND CAPACITIES ANALYSIS. Region XII, War Manpower Commission, Bureau of Manpower Utilization, Division of Occupational Analysis and Manning Tables, San Francisco, California, and Permanente Foundation Hospitals, Oakland and Richmond, California. Published by Permanente Foundation, Oakland, California, May, 1944. 627 pp. Cloth vi. Of 1000 copies this is copy No. 106.

AMONG the most important publications of the times, this represents a much needed guide in the accomplishment of scientific job placement in industrial organizations. As stated by the preface, "this book has been written in the hope that it may be of assistance in fulfilling two major objectives: first, that it will be of value to the shipbuilding industry in effecting company programs of physical demands and capacities analysis, and, second, that it will be of value to all industries in pointing the way to utilize this technique for matching the physical characteristics of workers and jobs."

The preface is signed by CLIFFORD KUH, M.D., Permanente Foundation Hospitals, Oakland and Richmond, California, and BERT HANMAN, War Manpower Commission, San Francisco, California, and the introduction is given by C. L. SHARTLE, Chief, Division of Occupational Analysis and Manning Tables, Bureau of War Manpower Utilization, War Manpower Commission, Washington, D. C.

Approximately one-fourth of the material is taken up by Part I entitled "Physical Demands and Capacities Analysis Manual" and Part II "Physical Demands Information Shipbuilding Industry." The remaining three-quarters of the book are devoted to "Physical Demands Analysis Schedules" in which details are given on the various jobs as shown.

The physical demands analysis for the job analyst includes general information, identifying information, physical demands analysis forms, physical factors, environmental factors, details of physical factors, details of environmental factors, and details of hazards.

Physical capacities analysis for the industrial physician contains similar information, with physical capacities analysis form, physical factors, environmental factors, details of environmental factors, diagnosis and examples.

Another section of the physical demands analysis has reference to relating the analyses for the placement officer, including general information, placement officers in industry, placement officers in the U. S. Employment Service, and relating the examples.

An appendix includes material on definitions of physical factors, definitions of environmental factors, and placement in the Richmond shipyards.

It is very difficult to review in any intelligent manner a book that has such detailed treatment; however, we will select one of the physical demands analyses schedules on p. 597 and reproduce most of the details found:

"Job Title—Welder, Arc, Production (journeyman trainee).

"Job Location—Engine Room, Prefabrication Shop.

"Dictionary Title—Welder, Arc.

"Dictionary Code—4-85.020.

"Physical Factors (those italicized are required by job, others are not)—*lifting; carrying; handling;* (handling—one arm; welders with one artificial and one good arm can perform this job); pushing; *pulling;* climbing; jumping; running; *walking; standing; stooping; crouching; kneeling;* crawling; *twisting;* reclining; *sitting; reaching;* fingering; feeling; talking; hearing; *seeing;* color vision; depth perception."

Of the Environmental Factors, the following are shown (those italicized are required by jobs, others not): "*inside;* outside; *high temperature; low temperature;* sudden temperature changes; *high humidity; low humidity;*" (the weather data chart is appended with reference to temperature and humidity data); "*toxic conditions; radiant energy; moving objects; mechanical hazards; electrical hazards; exposure to burns;* explosives; vibration; noise; high places; cramped quarters; wet quarters; *working with others; working around others;* working alone; *day shift; swing shift; graveyard shift.*"

"DETAILS OF PHYSICAL FACTORS: Walks within 75 ft. x 30 ft. Engine Roof Prefabrication Assembly Shop Area while lifting and carrying up to 15 pounds of welding equipment or while pulling horizontally to bring electric cable to place where welding is to be done (20%). Stands, stoops, crouches, kneels and sits in awkward positions to twist and reach above and below shoulder height while handling one-pound electrode holder during welding process and while handling light wire brush and slag-hammer to clean weld (75%). Stands, stoops and reaches down to handle controls to adjust electric generator (5%). Must be able to see ⅛-inch rod tip at 12 inches. No talking or hearing required. Physical factors similar on day and swing shifts.

"DETAILS OF ENVIRONMENTAL FACTORS: Works day and swing shifts only, with and around others, inside Assembly Shop with one side open to weather (100%). Exposed to black-iron welding fumes (75%), to rays from electric welding arcs (100%), to materials carried by other workers (100%), to sharp edges of materials (100%), to uninsulated parts of electrode holder (70%), and to hot metals and electric arcs (75%). Environmental factors similar on day and swing shifts.

"DETAILS OF HAZARDS: Possibility of respiratory irritation from black-iron welding fumes (75%), of injury to the eyes from electric welding arcs (100%)—(reduced by goggles and hood), of being struck and injured by materials carried by other workers (100%), of cuts from sharp edges of materials (100%), of electric shock from uninsulated parts of electrode holder (70%), and of burns from hot metals and electric arcs (75%)—(reduced by hood, gloves and leather garments). Hazards similar on day and swing shifts."

With rehabilitation and replacement assuming such importance all over the country in postwar planning, it is difficult to estimate the importance of this book. To paraphrase the words of MR. SHARTLE in the Introduction: The approach has several advantages over previous experience, overcoming difficulties tending toward such elaborate detail that application of the European technique was not practical. The classification of physical demands of jobs in terms of "none, little, moderate and great" and the

classification of physical capacities of workers in terms "secondary, light, moderate and heavy work" has also been changed in this plan. Physical and environmental demands are specifically defined, and physical capacities analysis based on the same terms will make it possible to define specifically the physical and environmental capacities of workers. This plan is adapted to *pre*-placement and *re*-placement evaluation, presenting a positive approach, emphasizing physical capacities, not medical diagnoses or physical handicaps, thus overcoming the shortcomings of and the need for lists of jobs suitable for the handicapped. Moreover, it preserves the confidential doctor-patient relationship, is adapted to the selective placement of all workers, male or female, young or old, emotionally stable or unstable, able-bodied or physically handicapped, and *particularly for the placement of the war disabled.*

It should be understood, however, as noted in the preface that no claim is made for the perfection of these methods, and that they should be considered as being in the developmental stage. Clearly, many problems remain that can be solved only through extensive research on the part of physicians, job analysts and placement officers.

The book should be extremely popular and should find ready and enthusiastic use by all those who are interested in the various and many-faceted phases of the subject.

NEWS, COMMENT and OPINION

—*Continued from page 26.*

I LOOK for an expansion of industrial medicine. This will go a long way toward meeting the problem in our industrial counties. Any physician with experience in industrial practice knows that the present program of examination of employees and care of accidents is not adequate. An extension to take care of sickness of the employees can certainly be developed, and I believe ultimately it will include their families, too. The development of this program needs watchful guidance by medical men if it is done to give the best care to the people involved and be most satisfactory for the doctor.

—From "Medicine in a Postwar World," by LEE R. WOODWARD, M.D., in *J. Iowa State Med. Soc.*, May, 1944.

Welders Proved Healthy

DATA to prove that welders are no more subject to respiratory disease than are workers in other crafts are given in a medical paper published in the January, 1944, issue of *J. Indust. Hyg. & Tox.* The editors of *J.A.M.A.*, commenting on this paper, point out "it is important to the steel fabrication industry in general, and especially to the shipbuilding industry, that these observations be known." The following conclusions from this paper are based upon examination of 8864 shipyard workers: (a) The annual frequency rate of pneumonia was 9.5 per 1,000 workers. There were no reliable data to indicate that the incidence of pneumonia is different among shipyard workers from what it is among the general population. (b) Evidence was presented showing that the type of pneumonia among shipyard workers was in no way different from that seen among the general population. (c) There was no indication that workers who had recently migrated to this area from other states were more susceptible to pneumonia than those who lived in this region for a long period of time. (d) Data are presented showing that the incidence rate of pneumonia is independent of the length of employment at the shipyards. (e) There was no relationship between the incidence of pneumonia and occupation. Statistics demonstrate that the incidence rate of pneumonia among the workers is independent of the type of work done. Employee papers, local newspapers and the labor press are being asked to feature this important information so that it will receive the widest circulation among workers, and all physicians in shipyard areas are being notified.

—ROBERT W. HARTON, U. S. Maritime Commission, in *Industry & Welding*, Cleveland, May, 1944.

Standards

AT A RECENT meeting of the Committee of the American Standards Association concerned with approval of Allowable Concentrations of Toxic Dusts and Gases, it was reported that six additional standards had been approved during the present calendar year. The standards now being considered are on methanol, styrene monomer, formaldehyde, trichloroethylene, and acrylonitrile. The proposed standards for oxides of nitrogen approved by the Committee are now being processed through the Safety Code Correlating Committee. Considerable discussion was given to the preparation of a standard for silica dust exposure. It was finally decided to prepare a standard which would take into consideration the data now available for threshold limits for various industrial dusts with a silica content. The consensus of opinion was that no single maximum allowable concentration could be developed in view of the fact that no two dusts containing silica have the same effect on health, even when the silica content may be the same. The chairman was authorized to appoint subcommittees to consider the following standards: methyl chloride, which is now being used in place of Freon as a refrigerant, hydrofluoric acid, fluorine and fluorides; and a standard for exposures in luminous painting to take care of radon, gamma rays, and radium dust. It was agreed by the Committee that the recently circularized code on carbon tetrachloride should be rewritten, adding a footnote to the effect that subjective symptoms may be experienced when exposed to concentrations lower than 100 parts per million, and for that reason attempts should be made to achieve concentrations lower than the standard recommended.

—*Industrial Hygiene Digest, Literature & News*, Industrial Hygiene Foundation, Pittsburgh, (abstracting a bulletin of the Division of Industrial Hygiene, U. S. Public Health Service), April, 1944.

The Opposition Spreads

THE MIDWEST Manufacturers' Associations express opposition to the Wagner-Dingell measure (S 1161—H.R. 2861) for the following reasons: (1) The Federal government has already incurred and is now incurring large liabilities for benefits under Title II of the Social Security Act. No accurate information concerning the extent of such liability as accrued to date, or as may accrue in the future, is now available. The extent of such liability has a bearing on all questions concerning government commitments for future benefits, either through increases in amounts or in the groups covered. Government or industry cannot adequately or intelligently consider matters affecting the subject without information concerning the financial status of the Social Security provisions. (2) Industry is now carrying a tremendous tax burden, the extent of which threatens to prostrate productive enterprise, imperil postwar reconversion and handicap industry in the effort to supply jobs during the postwar period. (3) The very large and now unknown costs of the war suggest conservatism in respect to all non-war expenditures and commitments. (4) This measure would eliminate merit rating and would further centralize the control over employers and employees in the central government and contemplates the assumption by the government of functions which should be left to private enterprise. (5) This measure proposes to lodge in the Surgeon-General of the Public Health Service undue power. The authority so delegated could be used to destroy the present system of private medical practice. (6) The measure would create another Federal bureaucracy which would, no doubt, be influenced in the administration of the program by considerations of political expediency."

—In *Industrial Review* (Illinois Manufacturers Assn.) Vol. XX No. 150, May, 1944.

—*Continued on page 529.*

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Bureau of Industrial Health

In our last issue (Industrial Medicine, May, 1944, page 406) we told where we stand with reference to the reasonableness, as well as the necessity, of having all the functions of government relating to health and hygiene matters which affect the industrial public as well as the general public, put into the hands of the state and Federal health departments—as against the labor, or any other, department. In that connection we said, regarding the state health departments: "they know how to spend money wisely and effectively for health purposes, and they have done and are doing a fine job." We should have added that, in addition to doing a fine job, they have the vision, enterprise and professional acumen to do even a better one. This would have been a safe statement, for the ink was hardly dry on the May pages when we received a copy of the announcement recently sent out to all industries in the state of New Jersey by DR. J. LYNN MAHAFFEY, Director of Health in the Department of Health of that state. This announcement begins "The State Board of Health, Trenton, New Jersey. . . . has established a Bureau of Industrial Health." The full text of the circular appears on page 28 herein, under the heading "Activities of State Health Departments." The new Bureau of Industrial Health will "encompass and develop the activities of the former Industrial Hygiene Service." In other words, there will be not less "hygiene" but more "health." This has tremendous significance.

In the matter of educating employers, particularly small employers, regarding industrial health, DR. MAHAFFEY'S move seems almost to cut the Gordian knot. The need for this kind of education has been the subject of many articles, more speeches, and still more pamphlets, circulars, etc., together with a vast amount of mental application by the industrial health committees of the state and county medical societies. But the problem seems only to grow larger as it is attacked more vigorously. Probably one of the reasons for this is that industrial health is largely an impersonal matter to the average small employer, unless and until his situation presents a definite and specific industrial health problem. Most of the arguments and exhortations of the past have reached his desk at a time when he didn't have any such problems of his own before him. DR. MAHAFFEY'S *Bureau of Industrial Health*, however, gets into his consciousness at the moment best calculated to make him a permanent convert to the gospel that doesn't interest him when it is only being preached, but does interest him greatly when it is actually being proved.

This movement inaugurated by DR. MAHAFFEY deserves and will get state-wide support in New Jersey. In order to obtain the same kind of support nationally it will have to be emulated in other states. It deserves that, too.

A Professional Individual

THE FOLLOWING editorial by F. L. VASSALLO, M.D., Buenos Aires, Argentina, appears in *The Medical Bulletin*, published by Standard Oil Company (N.J.), for April, 1944. By special permission of DR. WILLARD J. DENNO, General Medical Director of that company, we are adopting it here, under our own title, as this month's guest editorial.

ALTHOUGH we are all aware of the fact that the nurse, however good she may be, cannot usurp the functions of the doctor, it is less generally realized, though equally true, that the physician cannot do the work of the nurse, and when he tries to he makes a poor job of it.

Assuming the nurse to be of satisfactory human material, soundly trained in the theory, practice, ethics, and traditions of her profession, the value of her work in any medical service is comparable to that of the doctor himself. By discharging a multitude of duties more effectively than he could, she leaves him free to devote his time and attention to procedures such as diagnosing and prescribing, which he alone is qualified to perform. The two together form a smooth and efficient team, the effectiveness of which is no less impressive in an industrial service than in any other medical organization.

The application of business methods to the organization of an industrial medical service involves the intelligent distribution of work among the personnel of that service in such a manner that each worker undertakes those duties for which he or she is best fitted by training and experience. The physician's trained assistants, none of whom is more important than the nurse, in relieving him of tasks which they are competent to perform, leave him free to do more true medical work.

When we come to consider the bed patient, we find the nurse in her unmistakable place; she is irrefutably the one and only worker qualified to take direct charge of the patient and carry out the orders of the physician as to treatment. Nothing can be more logical than that such an exact science should have evolved into a completely independent profession, with its own

The first authentically recorded successful transfusion on human beings was performed in June, 1667, by Jean Baptiste Denis, physician to Louis XIV, in Paris. The patient was a youth 15 or 16 years old who had some obscure fever. The boy made a remarkable recovery following the administration of 9 ounces of blood from the carotid artery of a lamb. A later transfusion on another patient was unsuccessful, probably because of an incompatibility reaction, and the procedure was decreed criminal except when sanctioned by the Faculte de Medicin.[1]

1. The Blood Bank and the Technique and Therapeutics of Transfusions, Kilduffe and De Bakey, 1942.

TRANSFUSION has come a long way since those early days. The difficulties of typing and cross-matching where necessity calls for immediate transfusion pointed to a need for an acceptable blood substitute. Blood plasma was the substitute of choice and because dried plasma is stable and portable and may be kept without refrigeration for as long as five years, it is, obviously, the most satisfactory form of plasma.

Because of more than ten years' experience with the lyophile technic of preserving biological substances, Sharp & Dohme supplied the first nine months' requirements of the armed forces. In addition to supplying the Army and Navy with dried plasma, an entirely separate project, using blood from professional donors, makes 'LYOVAC' Normal Human Plasma available for civilian medical practice throughout the Western Hemisphere . . . ready for instant use wherever it is needed. Each 250-cc. unit contains approximately as much osmotically active protein as 500-cc. of whole blood and may be administered without typing or cross-matching. **Sharp & Dohme, Philadelphia 1, Pa.**

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traditions, its own code of ethics, and, most important of all, its own techniques. It is in failing to recognize the undisputable superiority of the nurse in her own field that many physicians make their first mistake; it is in changing her techniques or interfering with them that they aggravate that mistake.

The Parke-Davis Strike

THAT does it! Now you've gone too far!" Those, with a sense of radio comedy, have been Fred Allen's words. But now, with a foreboding of real-life tragedy, they are everybody's words. For they are on the lips and in the hearts of millions of Americans since the day last month when the strike at Parke-Davis laboratories in Detroit first got into the headlines.

The country on the whole has been rather tolerant of strikes, even in the face of their constantly increasing number—571 in the first quarter of 1942; 643 in the same quarter of 1943, and 1020 in the first three months of this year; involving more than 150,000 workers two years ago, 200,000 last year, 340,000 in 1944. It is true that there has been a growing impatience on the part of the public, but it might have remained no more than impatience, expressed through the slow and deliberate corrective processes of a democracy, if the incident at Parke-Davis had not occurred. That seemed, as it were, the last straw. It was like a strike in a hospital. And it brought forth a flood of protest and disapproval which leaves no doubt regarding the temper of the people.

This strike is very significant to the medical profession, particularly that part of it which is caring for the wounded on the battlefronts. It is also significant to industrial medical men—the Army and the Navy both have extensive medical departments, the latter being the largest single employer of civilians in the country. It is likewise significant to the many agencies, governmental and private, which are interested in the re-employment of returning veterans whether or not they will have needed rehabilitation. Because of these significances, among others, we shall a little augment the flood of published comments with one of our own.

Individualizing the Consequences

EVERYONE appreciates, of course, that all strikes interfere with the war effort. It has been difficult, however, to think of this interference in other than general terms. So many man-days were lost, so many ships or planes weren't built, so much ammunition wasn't made—all of this could be related to more difficult fighting, slower progress, more casualties. But there has been no means by which any of it could be translated into the identification of individual dead or wounded soldiers. The whole situation is impersonal, just as the general slaughter of war is impersonal—until it hits home. And, under this cover of impersonality, there has been no way, either, to trace a death or wound on a battlefield back to an individual responsibility in a manufacturing plant.

But this strike presents an entirely different picture in both respects. The effects here *can* be individualized, and the responsibility here *can* be traced. The plasma, for example, that Parke, Davis & Company prepare for war use, and the processing of which was threatened by this strike, is intended for individual personal application in every instance to a soldier who, at the time he needs it, isn't any longer in the war. For him the war will have ended—the impersonal will have changed to personal—when his wounds put him out of action. At that moment, he will have become an individual American, shot and bleeding, and in the hands of a medical man whose patient he is, and who is trying to preserve his life, and who will have every chance of preserving it if the normal flow of the means whereby he can preserve it is not impeded. In terms of this one item alone, the consequences of this strike, therefore, can be individualized in the name and identity of every wounded man who dies because of any interruption this strike or any similar strike may cause in the normal delivery of plasma to the places where plasma is needed. The surgeons will know the names and identities of these men. There will be too many of them, however, if, on the aggregate of the battlefields of this whole war, there shall be only one.

Individualizing the Responsibility

AND as to the responsibility for those consequences, this can be traced back with as much certainty of the relation between an act and its results as convinces American courts every day in the matter of proximate cause. Consider the possibility of a soldier's having been wounded as a result of that insufficiency of ammunition which might be imputed to the total interruption of the war effort by all the strikes that have occurred since Pearl Harbor. So far, the effect was from a general and indirect cause. But add, now, the one additional strike which made it impossible for the surgeons to give him the plasma that would have saved him—wherefore he died. Here the effect is from a direct and specific cause. Here, indeed, it is so specific and direct as to make every person whose participation in that strike contributed to the absence of the plasma at the time that boy needed it guilty—at least, morally, and as accessory, legally—of murder. The interruption of the processing of the plasma that would have saved him was not only an interruption of the war effort, it was also participation in the willful and wanton killing of a helpless person.

From the reports, the processing of plasma at the Parke-Davis laboratories has not yet been too seriously interfered with. The company had just completed the change-over from a small-size bottle to a larger size requested by the Army, and production was ready to begin the day before the strike was called, but, because of the strike vote, the Red Cross thought it advisable to divert the Detroit blood collections to other processing plants. None of the credit for this fortuity of circumstances, however, is due to any forbearance on the part of the strikers. In view of the continuing supply, the sense of the foregoing may seem only theoretical. But theoretical or not, both the fact of this strike and the logic of its possibilities are very real. And no one of the participants in this strike can lay the "flattering unction to his soul" that as yet no soldier has died for want of plasma that wasn't there because of it. The fact that such a strike could occur and did occur is the wrong.

"No Wrong Without a Remedy"

MAYBE it is only a platitude for law students that "there is no wrong without a remedy." What is the remedy for this kind of wrong? We don't know. Our helplessness here at home to do anything about

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**Reznikoff, P., and Goebel, W. V.:* The Use of Ferrous Gluconate in the Treatment of Hypochromic Anemia. *J. Clin. Invest. 16:547, 1937.*

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such occurrences seems almost a counterpart of the helplessness of the wounded soldier on the battlefield. Many a man on principle, and many another man with sons in the service, has almost gnashed his teeth in desperation at his inability to make such happenings stop. A great many things have been thought of, but few seem feasible when put into words. Here, however, is a suggestion that has possibilities—arrived at as follows:

The American citizen has faith in his government; there wouldn't be any war bonds sold if he hadn't. He also has faith in the agencies of his government. And he has faith in himself as a citizen of a sovereign nation which recognizes honesty and decency in itself and insists upon it in others. He, therefore, has a right to believe what his government tells him, and to rely upon the integrity of what his government does. He also has the right to trust the words and the promises of public men when their words are passed and their promises are made in connection with a government matter. Who shall blame him, therefore, if he gives full faith and credit to the no-strike pledge of the labor unions? He recognizes that this pledge was made in consideration of certain things the unions wanted and which the government saw that they got; that it was a fair trade; that the maintenance-of-membership contracts which the government has enforced were a valid and sufficient consideration for the unions' promise not to strike. He, therefore, believes in that promise; and, having been told that the men who made it are "all, all honorable men," he relies upon their repeated statements that the strikes he reads about every day in the papers are not violations of their pledge, inasmuch as they are "outlaw" and "unauthorized" strikes, for which they, as "honorable men," disclaim any and all responsibility.

But the American citizen is *thinking*—thuswise:

If these are outlaw strikes, and if, therefore, they are not violations of the no-strike pledge, then they must be individual acts. They occur; somebody starts them; others participate in them. That means, then, that the strikers have brought the inception and conduct of their strikes down from a union basis to an individual basis, in so far as they, themselves, are concerned. And thus their interruptions of work are not union movements; they are individual acts. The strikers seem to like it that way; and the disclaimers of responsibility among their leaders must mean that they, too, want it that way.

Very well, then, that is the way they can have it. It is possible in the Parke-Davis case, as has been shown here, to connect the individual acts of strikers with the individual consequences of those acts. This connection is not changed, nor is its relation of cause and effect in any way impaired or destroyed, by the interpretation put upon the Parke-Davis case by the union that this strike was fully authorized within the terms of the Smith-Connally Act. If this strike were thus "legal," it was, nevertheless, a violation of the no-strike pledge, and reprehensible enough on that account alone. But we are not discussing the merits, or lack of them, of the Parke-Davis strike itself. We are using it only to show what is here shown, namely, that for the first time in the history of wartime strikes, the particular circumstances of this strike permit the direct relation between the individual striker here and the individual soldier over there to be established. This direct connection is important. It has been elusive in previous strikes, but it is definite and straight and unbroken in this one. And once established, it can be used.

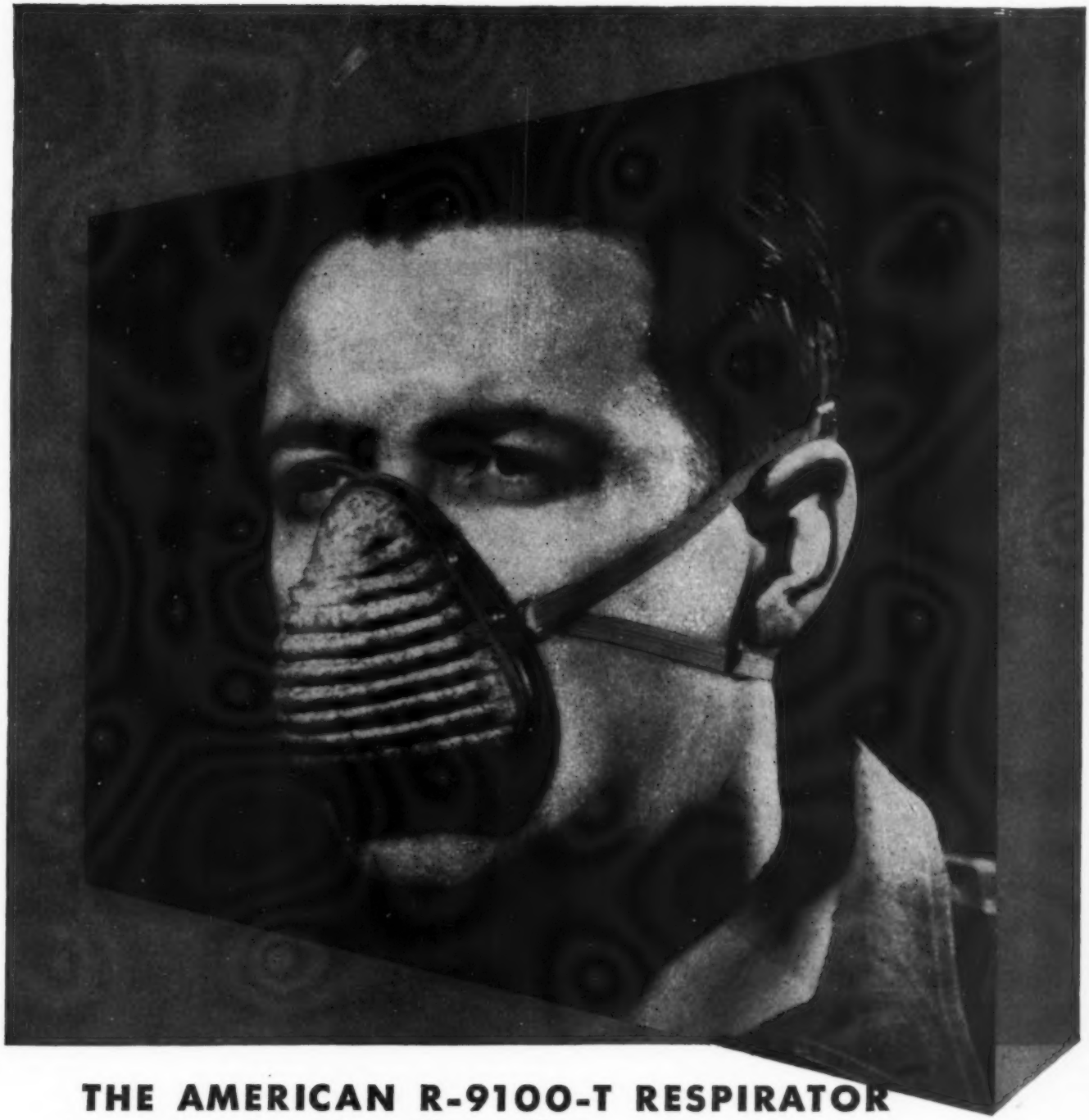
Having established it, therefore, let's use it. Let's lay it across the gap between the aggregate of all strikes here and the aggregate of all delays or interruptions of the war effort there. In other words, let's apply it to all strikes during the remainder of the war. Assuming, since the invasion is now under way, that there will be no actual violations of the no-strike pledge, all strikes from here on will be the acts of individuals. Let us charge the striking individuals, then, with the responsibilities of individuals, and distribute among them their respective personal shares of the consequences of their personal acts. Pursuant to this charge, let us make a list of all the names of all the persons who from now on throughout the duration of the war participate in any of these strikes. And let us preserve this list against the day when the boys come home from service. Then, as the boys apply for jobs, let's put them into the jobs now held by those on that list.

Who can object to this? Surely not the unions, since there won't be any authorized strikes, only outlaw and unauthorized ones; and it is not assumed that the union leaders will violate their no-strike pledge. No, the objections will come from those whose acts now will subject them to displacement later. But if they elect to be idle now when their work is vital—and in their own idleness enforce idleness on others—who shall hear them in time to come when they complain because their jobs will be needed for the boys who, by fighting now, will have earned the right to hold them then? There will be other objections—from those who expect to gain by the continuance of the strike agitation, and the vehemence of their protests will be proportionate to the extent of their expectations. Meanwhile, a salutary value of the list may lie in the recognition by the trouble makers of the fact, that, even if they do succeed in making work stoppages, for whatever reason, an occupational disease, they aren't going to be exposed to that disease beyond the soonest possible date at which they can be displaced by returning veterans.

Inside the Factory Gate

THE REAL worth of this list, however, will derive from its use by the agencies interested in seeing to it that the returning veterans are re-employed. There are many of these agencies, governmental and private. Selective Service is one of them. The problem of re-employment with respect to those who left their work to go into the services seems to be well in hand; their reinstatement in the jobs they left, or equivalents, is governed by law. There should be equal consideration for the others—the several million who entered the services from schools or from no jobs. These fall into the same class with the returning servicemen who will have to be rehabilitated before they are able to work in so far as the abilities of any of the interested agencies to put them actually into jobs will be concerned. It has been said that the most the agencies can do is to get these returning servicemen as far as the factory gates. But the list above-mentioned offers a way to get them inside the gates. Of course, the cooperation

—*Continued on page 512.*



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*Swartz & Reilly, "Diagnosis and Treatment of Skin Diseases," p. 66.

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Psychiatry in Industrial Accidents

LOWELL S. SELLING, M.D., Ph.D., Dr.P.H.,
Detroit, Michigan

ONE of the basic problems that confronts the energetic and aggressive scientist is the problem of cultural lag, i. e., the difficulty in making other people utilize knowledge which is in advance of present-day practice. In spite of the fact that many excellent techniques have been devised to segregate, locate, and train employees in industry, a majority of plants have progressed very little in their psychological practices in accident prevention during the past 30 years.

It is quite true that if the management in one plant knows that a competitor has introduced a new technique, the plant which does not yet have it may adopt it immediately, so that it can point to the fact that it is up-to-date. Unfortunately, in adopting new techniques, particularly in psychology and psychiatry, many of the attempts so far have been set up in a vacuum, for the personnel of the plant was not yet ready for them, nor was management able to select properly trained personnel to introduce new policies and to indoctrinate those concerned in such a way that they might be able to utilize the policy properly.

No one can deny that there are plants with personnel departments who have been properly trained in the use of tests, and who are able to use these tests and properly place the employees throughout the plant. It is true, too, that medical departments today undertake a great deal of the problem of deciding who is physically able to go into a specific job and who is not. Prior to the war, the plant physician's job as a rule was merely that of selecting those who were in the best physical condition and rejecting all others. With the decrease in available help, the personnel work of the physician has consisted in setting up a number of standards, below which it is unsafe to employ people in spite of the shortage, because of their ages, blood pressures, basic weaknesses, heart conditions, or whatever else in the way of defects the physical examination turns up.

When an accident occurs in a plant, it may be due to a number of causes. It may be due to improper equipment, and by that I mean that the machine itself is poorly cared for or out of condition. Second, it may be due to a break-down of the machinery. Third, it may be due to a lack of adequate safety devices. Fourth, it may be due to faulty instructions as to handling the machine, or faulty precautions in the plant in general, such as allowing oil to spill from passing trucks where someone might step in it and slip. Fifth, and last, the deficiency may be one of personality, and in the term personality I include both physical and mental make-up of the worker.

Because of Federal regulations, most plants are able to point to good mechanical safety procedures. Where there is danger of injury to the eyes, goggles are worn. Toes are protected from falling castings by reinforced toe-plates on the workman's shoes. Plant housekeeping is kept up-to-date, and wire circuits are inspected frequently, so that mechanical failure of equipment is cut to a minimum.

Because of the limitations in personnel, the situation here presents a marked cultural lag. Even in some of the most advanced plants, from a mechanical standpoint, it has not yet occurred to the personnel department or to the physician to interview the em-

From the Psychopathic Clinic of the Recorder's Court, Series I. No. 3. Read at a meeting of the Neuro-Psychiatric Society and the Psychological Club, Milwaukee, Wisconsin, January 27, 1944.

ployee who has just had an accident, for the sake of determining whether future accidents of a similar type could be prevented. Yet there are some workers in large plants around Detroit, constituting a seventh or eighth of all the employees in a division or plant which numbers thousands of employees, who have very close to 100% of all the accidents. These people are known as accident-prone individuals, and it is a misnomer to use this expression to cover the individual who has merely had an accident or two, if it can be shown that the accident may be partly due to poor equipment, poor management, unnecessary pressure on the worker, or some similar external cause.

There are a few plants around Detroit which, surprisingly enough, permit their medical departments to follow up the accident cases. There is one body company, for instance, that keeps all accident records on punched cards, so that those persons in the plant who have several accidents can be culled out and investigated. Unfortunately the punched cards carry such data as time of day and day of the week, rather than mental states or psychiatric diagnoses. It is too much to hope that we will reach a standard of plant management in the next few years which will permit the gathering of psychiatric data in the same way that we gather mechanical and temporal data.

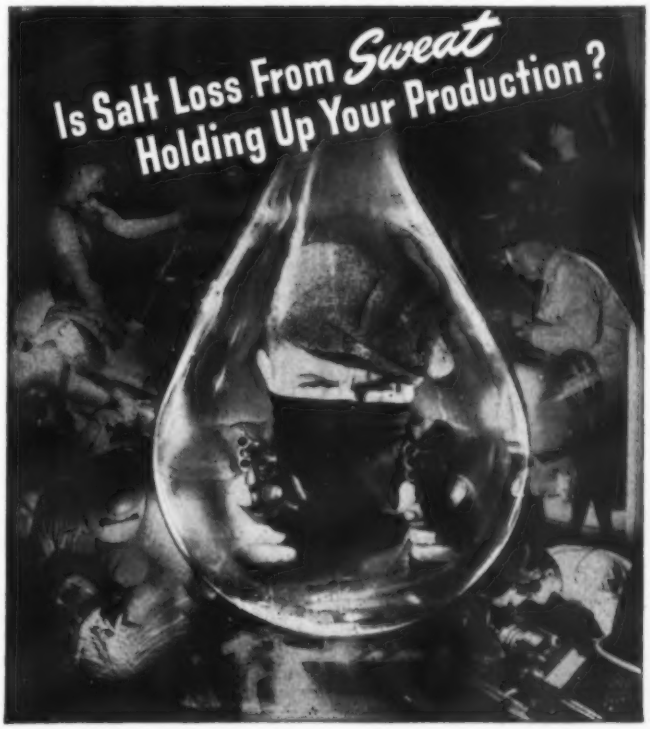
Causes of Accident Proneness

STUDIES have been made from time immemorial to determine why we have industrial, traffic, and home accidents. Millions of dollars have been spent by insurance companies in an attempt to secure data which would be useful in preventing accidents. In the matter of traffic accidents, a great deal has been done. Some of it we presumed before we had data and have, by collecting information, only gained further evidence, but there have been some unique findings, also. For instance, research has shown definitely that the use of alcohol is an important factor in the causation of traffic accidents, while physical disease has a minimum of responsibility. Because of various mechanical and psychological elements, it has been learned that accidents occur more frequently at night, and such factors as over-driving one's headlights or driving after spending the evening in a beer garden and imbibing continually during the evening play an important part.

In the industrial field, only a few factors of this sort have definitely been shown, but what is known is summarized below:

First, there is a relationship between nutrition and industrial accidents. In the Detroit area, we have plants that have tried providing a high-caloric mid-morning and mid-afternoon snack. There has been some improvement in their accident record. We do not yet know whether the snack was the sole cause, but observations in the field of industrial nutrition seem to point out that the hungry and undernourished workmen are more accident prone.

Second, there seems to be an emotional protest against mechanical safety appliances. This not only holds particularly true on piece-work jobs where the number of pieces produced is found not to be as great where safety appliances are used, and a protected machine is run with the guards off, but it is just as true in plants that are routinely operated on a daily-wage basis. There is a connection between absenteeism, frequent job changes, and accidents. The individuals are chronically protesting and the protest makes itself known in one of these three ways. Poor lighting and excessive noise are evidently responsible for some accident proneness, particularly among those with defective vision or hearing.



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The most important reason for accident proneness, according to certain surveys, including our own experience with traffic offenders, is faulty attitude. Given a man who has poor eyesight or inferior hearing, and put him at a machine where he will have to work hard and where there may be perhaps no adequate protection for him, and he won't have accidents if he has the attitude that he is going to do his best to prevent them.

The individual causes for accident proneness seem to be, first, physical inadequacy, particularly in the special senses; second, psychophysical inadequacy; third, mental deficiency and neuroses; fourth, preoccupation with other problems; fifth, dissatisfaction with a part or the whole of the plant's set-up; and sixth, a bad safety attitude which may include recklessness, indifference, or antagonism to law and order.

Physical Inadequacies

A GREAT deal of the thinking in plants about physical fitness for jobs had to do with the all-or-none capacity of the workman. Either he was well enough to stay on the job, or he was so weak that his condition might make it necessary to pension him off before he had been of enough value to the company. This meant that prior to the war, neurological cases were just not hired. If a man was tremulous, or had an old poliomyelitis, his chances for employment were slim. During the past two and a half years, however, the situation has changed markedly, and there is just as much to be condemned in the present fact that if a man can get out of his wheel chair and get over to his machine, he is hired, as there is in the former attitude. There has been a minimum of auditing of jobs with relation to physical and psychophysical capacity.

Going through a plant in the Detroit area, one sees monocular individuals operating pieces of equipment which require wide angle vision, elderly men with a coarse arteriosclerotic tremor operating small grinders or attempting to do precision work, and epileptics operating tremendously heavy hammers and punches with wide jaws into which they could fall. This is only a sample of what one can see. The larger the plants, the more misfits there are, and all of these people are accident-prone. The man who needs good binocular vision in order to do his job properly is apt not to see the projecting piece of metal that is coming out, and may catch his clothes. The shaky arteriosclerotic may cut himself on a small piece of steel he has just been sharpening, and the epileptic may fall under his press and be crushed. These examples are not far-fetched. They come from actual cases which have been brought to my attention.

I am pleasantly surprised to see the improvement in the plant physician's office with regard to its auditing of plant equipment for physical traits. But not nearly enough has been done, and there are still too many plants where nothing is being done. Those plants which are employing part-time physicians whose hearts are not in the work but are merely helping out for the duration or for the extra remuneration are the worst sufferers. Large organizations like Westinghouse, General Motors and Chrysler seem to be heading the list of successes, although their medical directors tell me that they still feel there is much to be done.

Certain difficulties in some large corporations rest upon the lack of uniformity in medical practices throughout the various sub-divisions of the organization. Some organizations having to do with plant safety, such as the National Safety Council, should

have an inventory of machines, in order to classify them from the standpoint of what the disabled, partially disabled, elderly, and those having various physical disorders can operate with safety. This is extremely important for returning veterans. However, even if such a series of specifications did exist, it would require considerable intelligence on the part of the personnel division, plus the physical, in any plant, to evaluate the particular amount of physical disability in terms of safety.

Psychophysical Inadequacies

THIS is a term much better known to the trained psychologist than to his medical confreres. During a recent psychiatric meeting, I invited one of the most important psychiatrists in the air forces to come to our Traffic Clinic to see the equipment which we have built for making psychophysical evaluations. He said he wasn't interested, but I am rather more inclined to believe that the term was unfamiliar. In order to make sure that the term is clear, I shall define it as that department of psychology which has to do with the numerical expression of human motor actions or judgments. In other words, tests are set up to measure the length of time that it takes a person who hears a horn to step on the brake, or his reaction may be measured with regard to speed of stopping his car when he sees a red light. In the field of judgment, we are inclined to use tests of depth perceptions, evaluation of speed of moving objects, and visual acuity to glare. There are other tests which might be used, but these are the most practical and have come into most common use.

Psychophysical testing of persons in industry had gone a long way before the war in certain selected plants and industries. This is particularly true in those corporations where motor vehicle operation was the chief cause of accidents. Several street-car companies have very complete psychophysical set-ups. Some trucking companies, as well as the Greyhound Bus Lines, also were interested in this field.

The evaluation of psychophysical capacity rests more or less on the same basis as the evaluation of the physical capacity. There are certain jobs in any plant which are dangerous to the person or others in the department, if an attempt is made by one with a slow reaction time to do the job. For instance, a person with a low reaction time who is inexperienced, would not be able to feed a job printing press unless it was slowed down to a commercially impractical rate. He could not coordinate so perfectly as to slip the already printed paper or page out and replace it at the same time with a clean sheet. On the other hand, a man with a slow reaction time might be quite useful in a packing and shipping department.

In a practical sense, some culling out has been done along psychophysical lines by the trial and error method. A man with a low reaction is tried on the production line and fails. He is therefore removed. Meanwhile, some disturbance has occurred on the line, some valuable raw material has been lost, and the experience may have had an unfavorable effect upon both the worker and his chiefs. Had a preliminary scientific psychophysical examination been done, he could have been properly placed.

It is the man with the border-line reaction time who seems to have the accidents, as he is not so slow as to be obviously incompetent and yet he is not fast enough to be able to do the job without strain and consequent fatigue. Slow reaction time, of course, suggests that other examinations be made to see if there is a beginning arteriosclerosis, a history of

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chronic encephalitis, or some other disorder which would account for it. Tests of judgment may also be used to eliminate those who would perform some act which would result in an accident. A man who has defective depth perception might stick his finger too deeply into a machine. This has been seen, and on occasion even with well-guarded equipment.

Mental Deficiency and the Neuroses

ALTHOUGH the problem of the mental defective and neurotic employee is not very large with regard to numbers, it is important because of the great damage that can be done by such employees. The psychotic or insane employee is of relatively minor importance. Usually the family or somebody else takes him out of circulation if he is dangerous and if he has recovered, plans can be made for him within the plant.*

A feeble-minded employee has very poor judgment about his conduct. He will violate plant rules that he sees others violating who are better coordinated, such as removing guards or speeding when driving trucks around the plant, without realizing his own personal limitations. In spite of the fact that these people can be easily culled out by easy and simple tests, there has been an unusual resistance to such tests in personnel departments in Detroit. I am in sympathy with the idea that only trained psychologists should use these tests in so far as possible, but when they are to be used as a rough screen, the plant is safer to use them, knowing they are not exact in the hands of the amateur in psychology, than not to use them at all. Feeble-minded employees cannot be put in charge of equipment which requires decisions and judgment as to how it is to be adjusted. On the other hand, they make good employees where routine is well fixed and where interpersonal relationships are not so close as to be a source of friction between the sensitive feeble-minded and the other employees.

The neurotic employee offers a number of problems. We will see more and more of this as discharged service men are re-employed. There is a vast number of service men being turned into industry today who were given a discharge for psychoneurosis which they either had before going into service or developed while in service. Regardless of whether the employee be an ex-service man or no, the conditions are the same. Some of these psychoneurotics are governed by uncontrollable impulses, one of the most serious being a desire to commit suicide or partial suicide because of subconscious feelings of guilt. Such employees as these never admit the suicidal impulse, in fact deny them and show great reactions to accidents, but their reaction offers a clue to the psychiatrist that self destruction, partial or whole, lies behind the accident.

Another type of serious psychoneurotic, as seen in plants, is the one whose uncontrollable impulse makes him want to harm others who, he feels, are injuring him or making trouble for him. This, too, is on a subconscious basis and sometimes reflects friction in the home when the patient was a child or other conditions which would be hidden from the casual interviewer. In traffic we have seen cases of this sort where the patient almost ran over a policeman and a study of the case revealed that he had such a hatred for his father that any other person symbolizing law and order as the father did was in danger of his life.

Feelings of anxiety oftentimes make the patient unsure of himself. Lying in behind such experiences we often find a childhood feeling of insecurity or an excessive mother attachment or some other type of

*SELLING, LOWELL S.: Industrial Psychiatry in Wartime," *Industrial Medicine*, Vol. II, No. 9, September, 1942. 407-411.

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psychoneurotic conflict, which, if ironed out, might leave the employee a real contributor to his own plant, but which, in turn, if neglected, makes him accident-prone.

Preoccupation with Other Problems

WITH the increase in knowledge of psychiatry in other fields than industry, there has come a gradual realization that the acts of an individual are not entirely based upon something the matter with the person himself. In child guidance we have the dictum that a problem child is a child of problem parents, and even in courts, probation departments, and corrective institutions where psychiatry has only penetrated by diapedesis, extensive investigations are made into the background and experiences of the offender before any attempt is made to solve his problems. So, in industry, one would expect to find considerable value in investigation of the accident-prone individual's mental life. In the case of those who are prone to traffic accidents we have already seen in our Clinic a large number of people who are physically sound, psychophysically adequate, who had normal intelligence and have no great personality problems, who were so preoccupied with the problems of their business or with the illness of a relative, or even with domestic problems, that their attention was distracted from the job of driving and an accident occurred.

When I asked personnel directors in plants why they do not do more about investigating preoccupation and know more about their employees in small organizations, their invariable answer has been that such studies are not worthwhile, and they point out cases of individuals with grave problems who, over a period of time, have had no accidents. It is quite obvious to anyone who understands the process of having an accident that these workers were so accustomed to the mechanical processes which they have been carrying out for many years that their minds could safely be elsewhere. But one would be foolish to maintain, because the completely habituated man performing a simple operation is accident-free, that anyone performing a more complex operation who is not as completely used to his job as the first man, might not come a cropper when his attention wanders away from his work.

Domestic difficulties are the most common causes of serious distraction. However, preoccupation with alleged injustices on the job, with the possibility of a strike, with the labor leader or foreman, all play an important part in accident causation.

Dissatisfaction

THE problem of dissatisfaction is one which I am convinced is of great importance in accident prevention, yet there seems to be no way of collecting statistics which would show how important it is. There are two reasons for this. First, the superficial reason that the man gives for his accident, such as, "I was careless," or, "I just don't know how it happened." These are usually the accepted reasons. Second, time studies of frequency of accidents are overweighted with such significant influences as the sobering-up period on Monday and the amount of plant production, lay-offs, and other rather extraneous factors. The writer has talked to workers after their accidents with the idea of finding psychiatric causes, and in many instances the workers give no better reasons than those just stated. Yet when one talks to them about other subjects, one finds that individuals with several accidents over a short period of time express great antagonism toward the management of their plant, or to the shop stewards with whom they have immediate contact. In some cases the resentment is so great that one might suspect that these men are subconsciously causing themselves to have accidents in order to punish or at least aggravate or disturb the management or to distract the union leaders.

Conflicts in personalities between the foremen and men seem also subconsciously to play an important part. The men become so vindictive that one would almost suspect their personalities operate as a physical entity to push them into machines, or to make them do poor work.

Bad Safety Attitude

THE term "bad safety attitude" covers a multitude of personality problems. But these problems manifest themselves in essentially the same symptoms, namely, unwillingness on the part of the employee to fulfill safety rules and to show an interest in doing those things that would prevent an accident to himself or others. Sometimes this bad attitude is set up by circumstances outside the man's own experience. But usually there is some personality factor which is important. By this I mean that occasionally cases occur where a reprimanded man has taken the guards off his equipment merely to aggravate the man who has been disciplining him, "forgetting" that he himself might be hurt.

After a lecture on goggles, one will find a certain number of persons whose attitude is not good and who have behind this bad attitude a personality disorder, taking off their goggles as a protest. In the prevention of bad attitudes, one finds additional use for personnel departments. In some moderately-sized plants, particularly new ones where personnel work is up to a high level and where the employees in this department are trained psychologists, we find that the attitudinal type of accident almost disappears. When the employee first reports for work, he is given an induction course. He is shown safety movies. He is told of the hazards of his work. He is shown his machine by a trained instructor, with special emphasis on precautions that can be taken. If he works in a plant where there is danger of eye injury, he is not allowed to go into the plant until he gets goggles and puts them on, and this is also true where employees need special shoes, respirators, or other equipment.

In the case of women, top-notch plants do not allow them to go to work until they come properly equipped in safe work clothes and having some article to guard their loose locks. Because they come on the job in a proper state of mind, many of the disturbing experiences that occur to them as they work in the plant will not cause a reaction contrary to safety procedures. One of the most difficult problems to overcome is the line between the executive departments and the employees, where the "front office" permits its employees and executives to go through dangerous parts of the plant without the same safety equipment that they demand of the machine operators.

Conclusion

THE time is coming, particularly since we will be getting more men who will be mentally and physically handicapped, who are veterans of the war, when industrial safety will have to be more than a set of rules and proper mechanical equipment. The individual capacities and weaknesses, the physical and mental needs of the worker who is to do a particular job, will need to be evaluated in terms of the individual who wants employment. This evaluation will have to be done by the plant physician, with the assistance of

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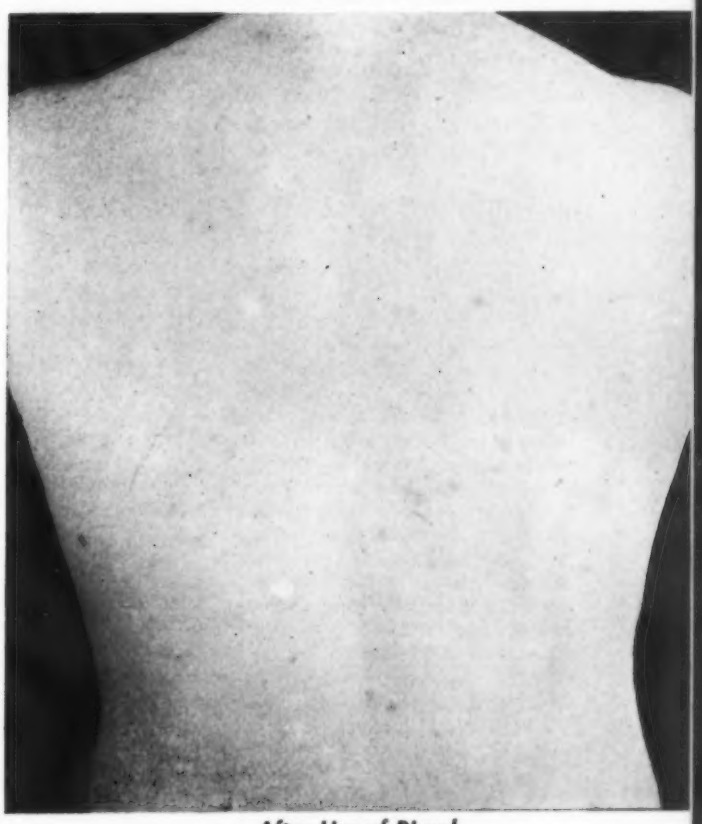

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competent, psychologically trained personnel workers. Each plant operation will have to be audited to see what kind of people should be employed.

If the demands of the machine are greater than the number of available men of the type needed, the specifications of the job need to be changed. Employees will have to be known better to personnel departments, so that cases of accidents due to preoccupation with other problems can be prevented by the advice of competent advisers in the plant, or even by the worker's removal until the problem is smoothed out.

Lastly, bad attitudes should be prevented from the start by good indoctrination procedures. The good attitude toward safety which is engendered in the beginning can very well be carried on through further interviews and contacts by personnel and medical departments who must show a real interest in accident prevention from a psychologic standpoint.

—*Continued from page 502*

of employers will be needed, but what employer will fail to cooperate? There will be a good many jobs thus available; on the basis of 340,000 participants in outlaw strikes in only the first quarter of the present year, there ought to be at least a million names on this list by the end of 1944. Let us, therefore, begin on the list—"us" being any one or all of the interested agencies above referred to. They, or several of them, —most appropriately Selective Service—have the ability and the position to do it. There can be no question as to whether or not they ought to do it.

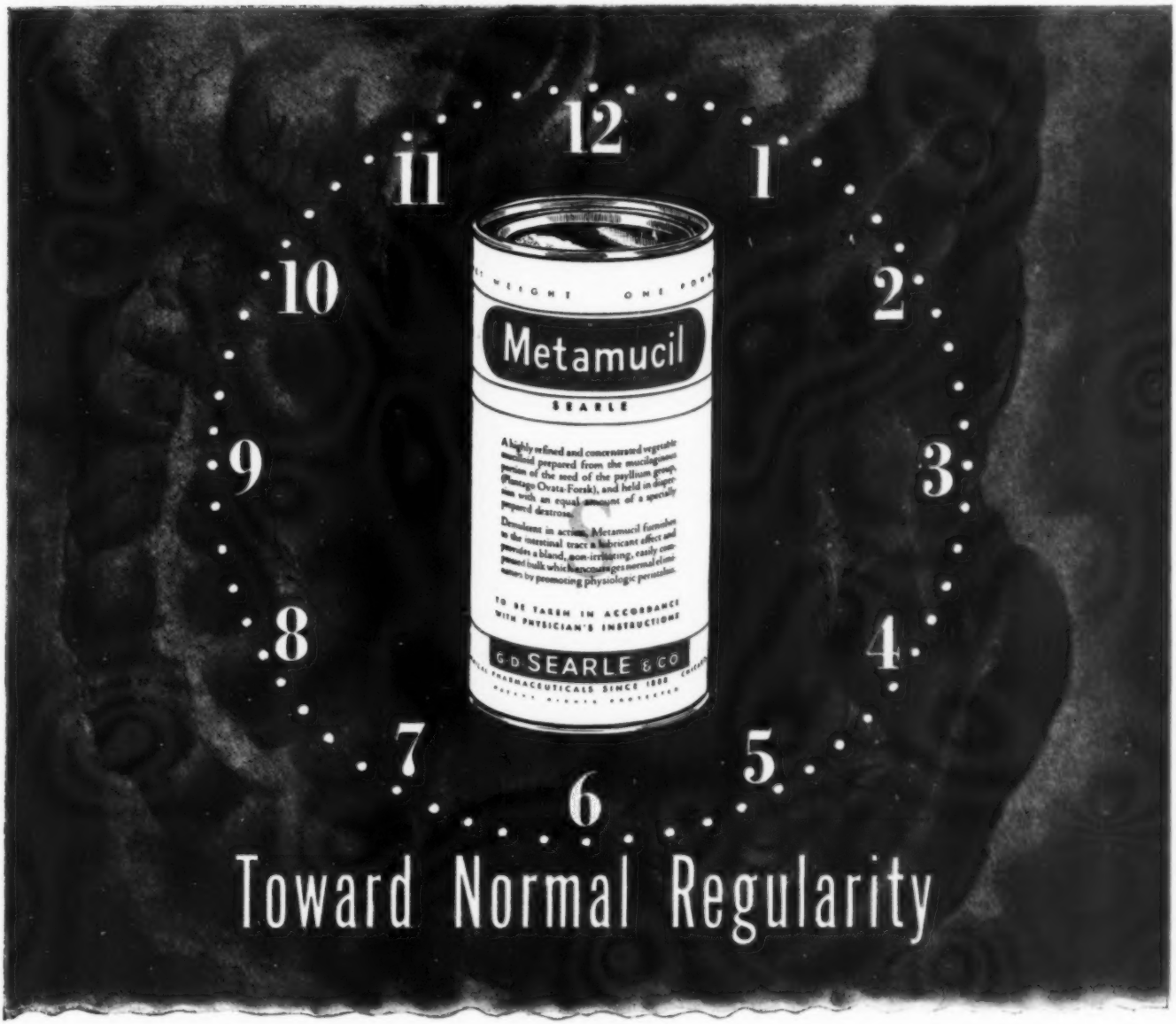
Conference on Industrial Health

THE SECOND "War Conference" of the physicians and surgeons, hygienists, and nurses, who are actually doing the industrial medical, hygiene and health work of the nation, held in St. Louis the second week in May, began Tuesday morning and continued without interruption until the following Sunday noon. The four participating organizations had their own programs, some of the meetings of one running concurrently with those of another, and, on several days, merging into joint sessions.

This five-and-a-half-day course of instruction, as it were, involved a panorama of constructive thought by qualified thinkers which set a new high mark for gatherings of the kind. Every phase of the art and science of industrial health was explored; every facet was illuminated; every nuance of its many expressions and variations was sounded. All of this necessarily produced a formidable volume of papers, discussions, records and illustrations which require some time to prepare for publication; and any arrangement of them which attempts to reflect the high quality and great importance of the whole Conference needs also at least a short withdrawal from its scene in order to obtain a perspective. Thus, except for the papers of DR. WAMPLER (page 470) and COLONEL ANDREWS (page 472), and the report of DR. WATSON'S Committee on Venereal Diseases (page 478), which are included in this issue, the Convention story is carried over to July. In that number a treatment of this important Conference material which will attempt to cover the many values it has, will be, at least, begun.

—*Continued from page 6.*

care set-up. This is particularly interesting because it shows what an experienced industrial physician can do with an idea. In addition to the sound economics with which DR. DICK underlays his hypothetical plan, there is the outstanding characteristic that this proposal is entirely free from political origin, control or interference. Such freedom may be a disability in legislative contemplation, but, as we learn every day, it is a prime virtue in the common sense application of anything that can be expected to work. . . . THERE are five "firsts" in this issue. DR. DAKIN leads off with the *first* instance where an industrial physician learned what the employees' jobs are by going out into the plant and working in them as an employee; DR. SHILEN follows with the *first* publication in the United States of an article on the subject about which he writes; DR. MAHAFFEY'S Bureau of Industrial Health (page 28) is not only the *first* bureau or department which has adopted that very excellent and significant name, but also the *first* bureau or department which has recognized, in its approach to those whom it serves, the fullest connotations of the term "industrial health"; DR. MCNALLY'S postmortems in cases of TNT poisoning are the *first* such postmortems that have been published; and the editorial on the Parke-Davis strike (page 500) contains the *first* constructive suggestion in connection with outlaw strikes that has been made since Pearl Harbor. . . . REFERENCE to that editorial calls to mind the interesting fact that while there is a very great deal being said at this time about postwar employment, there seems to be no mention at all of postwar unemployment. It would appear, however, that this unemployment should not be ignored nor left to be dealt with until it is upon us. A certain amount of it is inevitable, and so—"Leave us face it." In facing it, however, it ought to be kept in mind that if the time ever comes when there is so much of it that somebody will have to sell apples on street corners it must not be the veterans of *this* war who'll be reduced to that extremity, as it was after the last war, but—well, read the editorial! It was suggested the title of the editorial be "Medical Politics in a Lay Field" having in mind last month's "Lay Politics in a Medical Field." This had its points; if we needed any other reasons than the ones given for writing about the subject, we could invoke the turnabout, fair play idea that if politics can reach over into medicine, then medicine with equal grace can reach over into politics. But such a premise would assume that strikes are politics, which they are not. They do have a present political color, but we can't agree with any supposition that the color is more than campaign deep. . . . THIS being the Publisher's column, we are free to talk about the Editor. For 20 years DR. SAPPINGTON has been an eloquent and effective crusader in the cause of industrial health. His interest in it began when its few advocates were pioneers, and his was, indeed, "a voice in the wilderness." During 12 of the 20 years he has been identified with INDUSTRIAL MEDICINE; since it was founded in 1932 he has been its editorial chief. It is interesting, therefore, to learn that he comes naturally by the pioneering instinct, for he is the great-great-grandson of DR. JOHN SAPPINGTON (1776-1856) who is described in *Readers' Digest* for June, 1944, as "The Doctor Who Opened the West"—"a frontier doctor-on-horseback who had more influence on our national destiny than almost any other American medical man," and who is credited with having established quinine as a specific for malaria. The account says, "For five generations nearly every Sappington has been a physician." The present one is a physician, and still a pioneer. . . . TO DR. PILGRIM—commendably patient as he watched the last-minute move of the "Conference" editorial to this page, a late comment inserted on page 522, and himself, regardless of the already-printed Contents page, bulged clear out of the issue—we say: "Next Month, Doctor. . . ."



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SEARLE
RESEARCH IN THE SERVICE OF MEDICINE

Dermatitis Cases Reported among Employed Males and Females in Seven States

HUGH P. BRINTON, PH.D.,
Statistician, U. S. Public Health Service,
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STATEMENTS to the effect that women are more susceptible to dermatitis than men or that they are less susceptible than men are encountered in the literature relating to occupational diseases of the skin. Unfortunately there are few factual reports of the actual occurrence of dermatitis by sex among groups of industrial workers. Only by the gradual accumulation of a large amount of data can such assumptions as the following be proved or disproved: the skin of women is more sensitive to external irritants than that of men, due to its greater dryness; women are more likely to complain of slight skin irritations; during menstruation and gestation there is an increase of perspiration which might be a factor influencing greater sensitivity at such times; women are more cleanly than men hence they are more likely to remove possible irritants; in the same factory women are not so likely to do work which exposes them to irritating materials as are men.

An opportunity for a small contribution to this subject is afforded by the availability of over 30,000 cases of dermatitis reported by sex to the United States Public Health Service during the period from July, 1938 to October, 1943.* The states reporting for all or part of this time were California, Connecticut, Indiana, Michigan, North Carolina, Ohio and Wisconsin. Although the coverage of industries and the types of dermatitis cases reported vary greatly from state to state it is not believed that this should affect the proportion of male and female dermatitis cases recorded for the same company.

All cases included were considered to be cases of dermatitis by the state reporting them. They were not necessarily disabling nor was compensation always paid or claimed. Diagnostic standards were set by each state which determined whether or not a physician's statement was necessary. In almost all cases the industry employing the worker was named and the material exposure believed to have caused the dermatitis was described. Consideration will of necessity be limited to cases of persons complaining of dermatitis without regard to those working under the same conditions and not acquiring a dermatitis.

*A general paper based on this material is in preparation.

Analysis of Data

MATERIAL EXPOSURE: Table I presents the number of reported cases of dermatitis according to material exposure by sex. It will be noted that 26.1% of all dermatitis cases were among females. The five material exposure groups with the largest percent female were as follows: cosmetics 86.7%, explosives 62.2%, food products 49.5%, fabrics 47.6%, and glue and paste 45.1%. Many of the above exposures occur in industries which normally employ women to a large extent, so an excess of female dermatitis cases is to be expected. Without knowledge of the number of persons at risk no statement can be made as to the relative frequency of dermatitis according to sex.

Exposures of a type found in heavy industry show the lowest percent female. For example, building cement and concrete had 1.6% female, pitch and heavy coal tar distillates 2.2%, metal plating 5.7%, and fumes and gases 10.3%.

TABLE I.

CLASSIFICATION OF 32,512 CASES OF DERMATITIS ACCORDING TO MATERIAL EXPOSURE AND SEX, CASES REPORTED IN 7 STATES, JULY, 1938—OCTOBER, 1943

Material exposure	Number			Percent female	Percent	
	Total	Males	Females		Males	Females
Total	32,512	24,040	8,472	26.1	100.0	100.0
Oils and greases	6,788	5,330	1,458	21.5	22.2	17.2
Cutting oils	1,014	894	120	11.8	3.7	1.4
Other and unspecified oils and greases	5,774	4,436	1,338	23.2	18.5	15.8
Food products	3,848	1,944	1,904	49.5	8.1	22.5
Edible plants	3,283	1,666	1,617	49.3	6.9	19.1
Meat and fish	565	278	287	50.8	1.2	3.4
Alkalis	3,721	3,032	689	18.5	12.6	8.1
Soap and soap powders	1,242	751	491	39.5	3.1	5.8
Building cement and concrete	1,026	1,010	16	1.6	4.2	.2
Other and unspecified alkalis	1,453	1,271	182	12.5	5.3	2.1
Solvents	2,430	2,038	392	16.1	8.5	4.6
Metals	1,756	1,400	356	20.3	5.8	4.2
Metal plating	492	464	28	5.7	1.9	.3
Other and unspecified metals	1,264	936	328	25.9	3.9	3.9
Plants and woods	1,741	1,487	254	14.6	6.2	3.0
Plants	1,310	1,136	174	13.3	4.7	2.1
Woods	431	351	80	18.5	1.5	.9
Rubber and its compounds	1,061	729	332	31.3	3.0	3.9
Paints and thinners	934	792	142	15.2	3.3	1.7
Other and unspecified chemicals	874	696	178	20.4	2.9	2.1
Fumigants, fungicides, and insecticides	752	589	163	21.7	2.4	1.9
Acids and acid fumes	666	568	98	14.7	2.4	1.2
Fabrics	664	348	316	47.6	1.4	3.7
Physical agents	586	487	99	16.9	2.0	1.2
Dyes, pigments, and dye intermediates	585	352	233	39.8	1.5	2.8
Mechanical agents	584	433	151	25.9	1.8	1.8
Explosives	458	173	285	62.2	.7	3.4
Biologic agents	408	284	124	30.4	1.2	1.5
Pitch and heavy coal tar distillates	364	356	8	2.2	1.5	.1
Glue and paste	284	156	128	45.1	.6	1.5
Leather and hides	273	204	69	25.3	.9	.8
Insulating materials	266	231	35	13.2	1.0	.4
Fumes and gases	252	226	26	10.3	.9	.3
Chromates and chromic acid	249	206	43	17.3	.9	.5
Synthetic resins or plastics	226	156	70	31.0	.6	.8
Cosmetics	226	30	196	86.7	.1	2.3
Nonmetallic elements	132	112	20	15.2	.5	.2
All other known exposures	631	410	221	35.0	1.7	2.6
Unknown exposures	1.753	1,271	482	27.5	5.3	5.7

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Many of the exposures with an extremely high or low female percent are comparatively unimportant when the total dermatitis cases are considered. The magnitude of the dermatitis problem relative to particular exposures is best observed by calculating the percentage distribution of all exposures for males and for females.

The five most important material exposure groups among males, as measured by dermatitis cases reported, were as follows: oils and greases 22.2%, alkalis 12.6%, solvents 8.5%, food products 8.1%, and plants and woods 6.2%. A similar list for females showed food products at the top with 22.5%, followed by oils and greases with 17.2%, alkalis 8.1%, solvents 4.6%, and metals 4.2%. A great majority of the material exposure groups for both males and females yielded less than 5% of the total dermatitis cases. For females there was a slightly greater concentration of dermatitis cases in the five principal exposure groups than was observed for males.

Industrial Exposure

A CLASSIFICATION of dermatitis cases by industry is given in Fig. 1 and Table II. From this table it appears that 74.8% of all male cases and 75.3% of all female cases were among persons engaged in manufacturing and construction. For those in wholesale and retail trade and services combined, the percentages were 10.2 and 16.7, respectively.

The particular types of manufacturing showing the greatest percentage of dermatitis cases among females included the following: explosives 62.1%, food and kindred products 42.3%, apparel 40.0%, textile mill products 39.8%, and aircraft and parts 34.9%. When these percentages are related to the corresponding percentage (26.1) for all industries it is evident that excesses are found in those industries extensively employing women.

Females reported 34.2% of all cases of dermatitis among wholesale and retail trade workers. While only 3.0% of the filling station, garage, and auto dealer workers were female, 66.4% of the drug store workers were female. As might be expected, females represented 40.9% of all dermatitis cases reported for service workers.

Within this service worker group female percentages ranged from 22.8% for amusement and recreation workers to 88.1% for beauty parlor and barber shop workers.

Industrial groups in which reported dermatitis cases were less than 10% female included shipbuilding; dye, paint and varnish manufacture; stone, clay, and glass products; electroplating; filling stations, garages and auto dealers; and construction.

TABLE II.

CLASSIFICATION OF 32,512 CASES OF DERMATITIS ACCORDING TO INDUSTRY AND SEX, CASES REPORTED IN 7 STATES, JULY, 1938—OCTOBER, 1943

Industry	Number			Percent female	Percent	
	Total	Males	Females		Males	Females
Total	32,512	24,040	8,472	26.1	100.0	100.0
Manufacturing	23,155	16,792	6,363	27.5	69.8	75.1
Transportation equipment	5,887	4,774	1,113	18.9	19.9	13.1
Automobile and equipment	3,937	3,430	507	12.9	14.3	6.0
Aircraft and parts	1,658	1,080	578	34.9	4.5	6.8
Shipbuilding	265	248	17	6.4	1.0	.2
Other transportation equipment	27	16	11	40.7	.1	.1
Food and kindred products	4,556	2,629	1,927	42.3	10.9	22.7
Iron and steel and their products	3,411	2,520	891	26.1	10.5	10.5
Machinery	2,250	1,839	411	18.3	7.7	4.9
Chemicals	1,226	807	419	34.2	3.4	5.0
Explosives	480	182	298	62.1	.8	3.5
Plastic materials	194	132	62	32.0	.6	.7
Dye, paint, and varnish	145	132	13	9.0	.5	.2
Other and unspecified chemicals	407	361	46	11.3	1.5	.6
Rubber products	1,068	704	364	34.1	2.9	4.3
Textile mill products	1,029	619	410	39.8	2.6	4.8
Lumber and timber products	842	667	175	20.8	2.8	2.1
Nonferrous metals	685	533	152	22.2	2.2	1.8
Stone, clay, and glass products	436	394	42	9.6	1.6	.5
Leather and its products	347	241	106	30.5	1.0	1.3
Apparel	340	204	136	40.0	1.0	1.6
Electroplating	265	247	18	6.8	.8	.2
Printing	207	179	28	13.5	.7	.3
Paper and allied products	163	126	37	22.7	.5	.4
Other manufacturing industries	443	309	134	30.2	1.3	1.6
Wholesale and retail trade	2,528	1,664	864	34.2	6.9	10.2
Eating and drinking places	1,118	631	487	43.6	2.6	5.7
Filling stations, garages, and auto dealers	504	489	15	3.0	2.1	.2
Food stores	318	245	73	23.0	1.0	.9
Drug stores	152	51	101	66.4	.2	1.8
Other wholesale and retail trade	436	248	188	43.1	1.0	2.2
Services	1,347	796	551	40.9	3.3	6.5
Laundries, and cleaning and dyeing establishments	304	194	110	36.2	.8	1.3
Beauty parlors and barber shops	202	24	178	88.1	.6	2.1
Hotels, rooming houses	200	122	78	39.0	.5	.9
Amusement and recreation	197	152	45	22.8	.3	.5
Medical and other health services	128	64	64	50.0	.1	.8
Other services	316	240	76	24.1	1.0	.9
Construction	1,215	1,196	19	1.6	5.0	.2
Government service	731	611	120	16.4	2.6	1.4
Agriculture	685	574	111	16.2	2.4	1.3
Transportation, communication, and other public utilities	391	350	41	10.5	1.5	.5
All other known industries	742	629	113	15.2	2.6	1.4
Unknown industries	1,718	1,428	290	16.9	5.9	3.4

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Material Exposure for Selected Industries

TABLE III shows a percentage distribution of cases of dermatitis for the five largest industrial groups according to material exposure by sex. It will be noted that material exposures in a particular industry are concentrated under one, two, or three groups with a scattering of other exposures none of which amounts to as much as 10%. In general, male and female dermatitis cases show about the same pattern of distribution in a given industry, despite the fact that the work performed may be quite dissimilar. Where there is a substantial difference in the distribution of cases it would appear to be produced by the concentration of female dermatitis cases in a smaller number of exposure groups than among males. This doubtlessly reflects the narrower range of jobs performed by females.

Oils and greases are the most important material exposure for both males and females in the transportation equipment, iron and steel, and machinery industries. In these same industries solvents, and metals hold places second or third in importance.

In the food and kindred products industry 59.9% of the male dermatitis cases and 86.5% of the female cases had an exposure listed as food. Next in importance were alkalis with 9.7% for males and 2.1% for females. Fumigants came third with 4.2 and 1.1%, respectively.

Wholesale and retail trade, because of the wide variety of activities involved, showed greater sex differences than the industries previously described. Alkalis were most important with 30.6% for males and 38.5% for females. Solvents (used chiefly in garages and filling stations) accounted for 16.2% of the male cases, but only 1.7% of the female cases; similarly oils and greases showed male and female percentages of 8.6 and 0.5, respectively. On the other hand, food was named in 15.3% of the male cases and 21.9% of the female cases, and fumigants were named in 5.0 and 9.0%, respectively.

Each of the five industries examined included mechanical agents (friction, pressure and irritation) in the 10 most frequent material exposures, but in no case was the percentage as much as 2.5 for either males

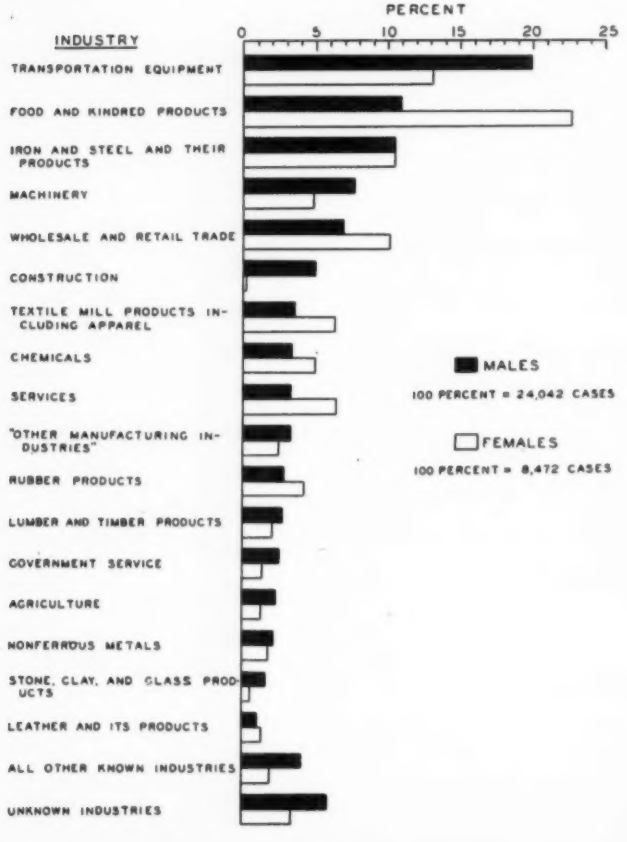

Fig. 1.
Percentage distribution of cases of dermatitis among males and females according to industry

TABLE III.
PERCENTAGE DISTRIBUTION OF CASES OF DERMATITIS FOR 5 SELECTED INDUSTRIES ACCORDING TO MATERIAL EXPOSURE AND SEX, CASES REPORTED IN 7 STATES, JULY, 1938—OCTOBER, 1943

Material exposure	Number		Percent	
	Males	Females	Males	Females
Food and kindred products				
Total	2,629	1,927	100.0	100.0
Food products	1,574	1,666	59.9	86.5
Alkalis	254	41	9.7	2.1
Fumigants, fungicides, and insecticides	110	22	4.2	1.1
Plants and woods	101	19	3.8	1.0
Physical agents	55	17	2.1	.9
Biologic agents	45	5	1.7	.3
Oils and greases	41	5	1.6	.3
Solvents	40	4	1.5	.2
Other and unspecified chemicals	39	14	1.5	.7
Mechanical agents	39	16	1.5	.8
All other known exposures	205	68	7.7	3.5
Unknown exposures	126	50	4.8	2.6
Transportation equipment				
Total	4,774	1,113	100.0	100.0
Oils and greases	1,856	388	38.9	34.9
Metals	552	209	11.6	18.8
Solvents	478	112	10.0	10.0
Alkalis	423	31	8.8	2.8
Paints and thinners	180	46	3.8	4.1
Rubber and its compounds	143	12	3.0	1.1
Acids and acid fumes	133	13	2.8	1.2
Mechanical agents	100	16	2.1	1.4
Insulating materials	86	11	1.8	1.0
Physical agents	72	8	1.5	.7
All other known exposures	430	159	9.0	14.3
Unknown exposures	321	108	6.7	9.7
Iron and steel and their products				
Total	2,520	891	100.0	100.0
Oils and greases	1,498	685	59.4	76.9
Solvents	244	90	9.7	10.1
Metals	156	27	6.2	3.0
Alkalis	108	20	4.3	2.2
Physical agents	66	3	2.6	.3
Paints and thinners	57	10	2.3	1.1
Other and unspecified chemicals	49	5	1.9	.6
Mechanical agents	46	7	1.8	.8
Acids and acid fumes	38	4	1.5	.5
Plants and woods	24	1	1.0	.1
All other known exposures	139	25	5.5	2.8
Unknown exposures	95	14	3.8	1.6
Machinery				
Total	1,839	411	100.0	100.0
Oils and greases	986	194	53.6	47.2
Solvents	217	46	11.8	11.2
Metals	92	21	5.0	5.1
Alkalis	75	15	4.1	3.7
Acids and acid fumes	74	18	4.0	4.4
Paints and thinners	55	12	3.0	2.9
Other and unspecified chemicals	36	10	2.0	2.4
Insulating materials	33	10	1.8	2.4
Mechanical agents	25	8	1.4	2.0
Physical agents	23	2	1.2	.5
All other known exposures	107	31	5.8	7.5
Unknown exposures	116	44	6.3	10.7
Wholesale and retail trade				
Total	1,664	864	100.0	100.0
Alkalis	509	333	30.6	38.5
Solvents	269	15	16.2	1.7
Food products	255	189	15.3	21.9
Oils and greases	143	4	8.6	.5
Fumigants, fungicides, and insecticides	83	78	5.0	9.0
Paints and thinners	48	2	2.9	.2
Plants and woods	47	19	2.8	2.2
Physical agents	47	35	2.8	4.1
Biologic agents	24	18	1.4	2.1
Mechanical agents	21	19	1.3	2.2
All other known exposures	121	96	7.3	11.1
Unknown exposures	97	56	5.8	6.5

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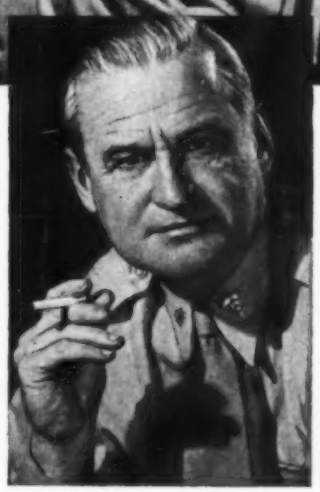

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TABLE IV.
PERCENT FEMALE OF ALL EMPLOYED WORKERS IN 7 STATES 14 YEARS OF AGE AND OVER (16TH CENSUS OF U. S., 1940), AND PERCENT FEMALE OF ALL CASES OF DERMATITIS REPORTED IN THE SAME 7 STATES, JULY, 1938—OCTOBER, 1943, FOR SELECTED INDUSTRIES

Industry	Percent female	
	Employed workers	Cases of dermatitis
Total, all industries including those below	23.9	26.1
Services	70.3	40.9
Wholesale and retail trade	26.6	34.2
Government service	19.1	16.4
Manufacturing	18.3	27.5
Apparel	74.3	40.0
Textile mill products	41.5	39.8
Leather and its products	38.8	30.5
Food and kindred products	17.7	42.3
Chemicals	17.2	34.2
Nonferrous metals	16.0	22.2
Machinery	15.3	18.3
Stone, clay, and glass products	15.2	9.6
Iron and steel and their products	8.0	26.1
Transportation equipment	7.8	18.9
All other and unspecified manufacturing industries	17.5	25.3

or females. For three industries the percent of male dermatitis cases in this category was greater than for females, while the reverse was found in the other two.

Except in wholesale and retail trade, there was considerably less exposure to physical agents among females than among males. This may be due to the less strenuous work of women, since under the heading of physical agents are included heat, cold, water, electricity, and steam.

In three out of the four industries showing paints as a material exposure the percentage of dermatitis cases among males was greater than for females.

Comparison with Gainfully Employed

A ROUGH statement of the relative frequency of reported dermatitis cases among males and females may be obtained by comparing the sex ratio for specific industries in the U. S. Census taken in 1940 with the sex ratio in the reports of dermatitis cases occurring during 1938-43 in the same industrial groups. It is obvious that the census was taken before the effects of the war time shift toward the employment of women had made itself felt, but it is believed that the sex ratios for the entire five-year period will be fairly comparable with the census except for the distinctly war industries. It should also be remembered that the jobs which men and women do in the same industry may be very different with respect to the liability of coming in contact with dermatitis producing materials; hence a sex ratio for dermatitis cases similar to the sex ratio of the census cannot be assumed to mean that males and females are equally susceptible to dermatitis. The number of dermatitis cases per 1,000 persons working under precisely the same conditions for a given length of time is the only basis for drawing conclusions as to sex differences in susceptibility.

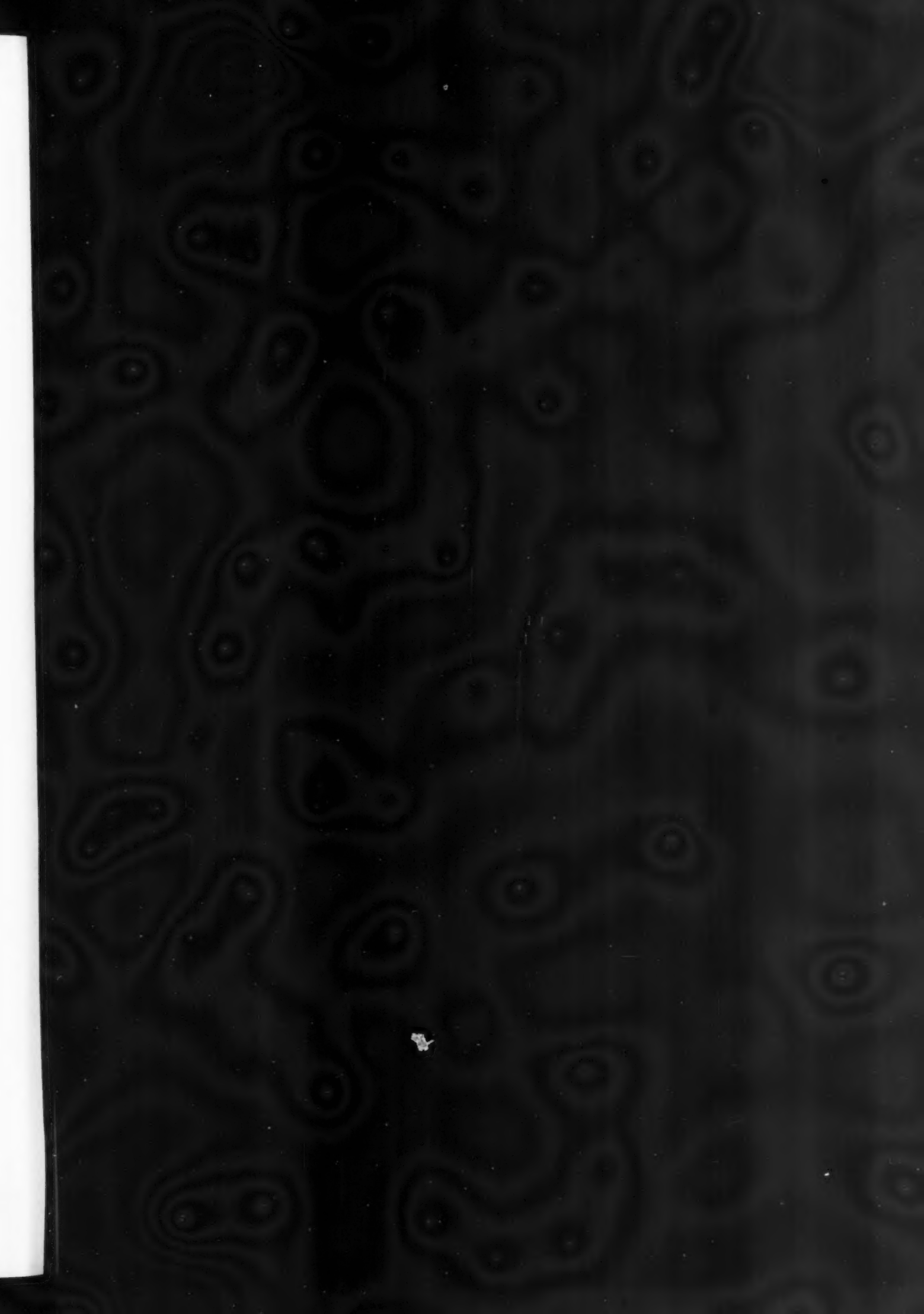
Despite the above limitations it is interesting to note that great variations exist between the percentage of females according to the 1940 census and the percentage on the dermatitis report. Table IV shows comparative figures for the two sources. The female percentage for dermatitis cases was more than double that for the census population in the following industries: transportation equipment, iron and steel and their products, and food and kindred products. There is little difference in the proportion of females for machinery, textile mill products, and government service. For certain industries the percentage of females according to the census is greatly in excess indicating a favorable dermatitis experience. These industries include stone, clay and glass products; apparel; and personal services.

California Rates

FOR a specific state and for a limited time it has appeared worthwhile to calculate the number of reported cases of dermatitis per 1,000 persons enumerated on April 1, 1940, by the U. S. Bureau of the Census. Table V shows the result of such calculations for the State of California covering dermatitis reported during the two-year period from July 1, 1939, to June 30, 1941. The industries selected are believed to have

TABLE V.
NUMBER OF CASES OF DERMATITIS PER 1,000 EMPLOYED WORKERS 14 YEARS OF AGE AND OVER (16TH CENSUS OF U. S., 1940), ACCORDING TO SELECTED INDUSTRY AND SEX, CASES REPORTED IN CALIFORNIA, JULY, 1939—JUNE, 1941

Industry	Number of cases of dermatitis per 1,000 employed workers		Ratio: female to male	Number of cases of dermatitis		Number of employed workers, 1940	
	Males	Females		Males	Females	Males	Females
Total, selected industries	2.6	2.7	1.04	3,824	1,160	1,463,212	431,064
Manufacturing	6.2	12.1	1.95	2,162	812	349,807	67,104
Food and kindred products	19.7	40.5	2.06	1,182	708	60,016	17,495
Leather and its products	11.2	9.6	.86	30	9	2,679	941
Chemicals	7.8	6.9	.88	120	18	15,315	2,605
Stone, clay, and glass products	6.8	3.7	.54	95	6	14,048	1,634
Machinery	5.0	1.8	.36	146	5	29,461	2,825
Nonferrous metals	4.6	6.9	1.50	37	4	7,962	581
Iron and steel and their products	4.0	2.3	.58	130	5	32,264	2,178
Aircraft and parts	3.9	3.9	1.00	143	5	36,428	1,291
Textile mill products including apparel	3.4	1.8	.53	36	33	10,551	18,846
Lumber and timber products	2.0	2.8	1.40	77	7	39,097	2,538
Rubber products	2.0	1.3	.65	13	1	6,483	760
Transportation equipment, except aircraft	1.5	0	0	38	0	24,622	1,092
Paper, printing, and allied products	1.0	.6	.60	38	5	39,077	8,917
Other manufacturing industries	2.4	1.1	.46	77	6	31,804	5,401
Eating and drinking places	4.1	4.1	1.00	228	158	54,979	38,903
Laundries, and cleaning and dyeing establishments	3.0	1.1	.37	57	19	18,705	16,857
Construction	2.6	0	0	390	0	149,063	2,792
Filling stations and auto dealers	2.3	.4	.17	207	2	88,299	4,499
Government service	1.8	1.0	.56	220	24	124,547	24,791
Drug stores	1.7	5.2	3.06	17	24	9,984	4,595
Hotels, rooming houses	1.5	.7	.47	36	16	23,763	21,501
Amusement and recreation services	1.4	1.7	1.21	67	22	48,061	12,791
Food and dairy products stores	1.2	.8	.67	87	15	74,347	18,437
Agriculture	.8	1.0	1.25	196	14	258,577	14,256
Medical and other health services	.8	.4	.50	25	19	32,008	42,904
Transportation, communication, and other public utilities	.7	.3	.43	117	7	173,278	26,511
Dry goods and apparel stores	.3	.3	1.00	11	14	34,731	47,190
Domestic service	.2	.2	1.00	4	14	23,063	87,933



FIRST AID for SUNBURN and PRESSURE BURNS

During this war period an increased incidence of sunburn and blistered feet (pressure burns) continues to be observed among both civilian and military populations.

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comparable coverage with respect to the census and the dermatitis listings.

It will be observed that the total dermatitis rate is almost the same for males and females, being 2.6 and 2.7 cases per 1,000 employees. The rate was precisely the same for persons working in eating and drinking places, dry goods and apparel stores, domestic service, and aircraft and parts manufacturing. The ratio of the female rate to the male rate was less than 0.60 for laundries, cleaning and dyeing establishments; filling stations and auto dealers; government service; hotels and rooming houses; medical and other health services; transportation, communication and other public utilities; stone, clay and glass products; machinery; iron and steel and their products; and textile mill products including apparel. In only the following industries was the female rate higher than the male rate: drug stores; amusement and recreation services; agriculture; food products; nonferrous metals; lumber; timber products.

The very extensive food products industry in California produced a dermatitis rate higher than any other employment. Of the workers in this industry 19.7 per 1,000 males and 40.5 per 1,000 females reported dermatitis cases. Second highest was the leather and leather products industry with rates of 11.2 and 9.6, respectively, and third highest were chemicals with rates of 7.8 and 6.9.

It is difficult to measure the effect of the war upon the frequency of dermatitis among females since no accurate population base is available. Doubtless female employment has increased more rapidly in some industries than in others. Dermatitis cases reported from California have been divided into two periods, namely, from July 1, 1939, to June 30, 1941, and from July 1, 1941, to December 31, 1943. In the latter period, corresponding to the time of greatest industrial activity, there was a general increase in the percent of dermatitis cases which are female. For certain industries where this change was especially marked, the percent female for the earlier and the later period was as follows: transportation equipment, including automobiles 2.7 and 27.8, machinery 3.3 and 26.4, chemicals 13.0 and 27.8, iron and steel 3.7 and 10.3, government service 9.8 and 23.4, and transportation, communication, and other public utilities 5.6 and 18.2. Supposing that the actual employment of females has not increased to the extent these figures suggest, the possibility remains that newer female employees are more subject to dermatitis or that they are more likely to report skin troubles. Only the leather industry showed a decline in the proportion of females. Even industries with normally a large number of females such as textiles showed a rise from 51.2% to 60.0% female. Personal services changed from 32.3% to 42.6%.

Conclusion

IN A STUDY of 32,512 cases of dermatitis reported to the United States Public Health Service, by seven states from July, 1938, through October, 1943, the percentage of cases which were among females was found to vary according to material hazard and industry. In general those industries employing a large proportion of females had likewise a large proportion of female dermatitis cases. However, the food products, iron and steel, and transportation equipment industries show a much larger percentage of dermatitis cases among females than the percentage of female workers, according to the census. Conclusions as to sex differences in susceptibility to dermatitis cannot be drawn unless working conditions are the same and the number of persons exposed to each hazard is accurately known.

The number of reported dermatitis cases per 1,000 workers in certain broad industrial groups was calculated for the State of California. In most industries the female rate was found to be the same or lower than the male rate. The female rate was higher in drug stores; amusement and recreation services; agriculture; food products; nonferrous metals; and lumber and timber products.

When the period from July, 1939, to June, 1941, is compared with the period from July, 1941, to October, 1943, for California there was found to be a great increase in the percent of dermatitis cases which were female; the largest increases were in the transportation equipment, machinery, chemical, and iron and steel industries.

"A Little Knowledge . . . ."

THERE is competent proof that inhalation of metal dust, such as iron oxide, produces no injurious condition of the lungs. The condition that is produced by it has the name of siderosis. That term is well understood by the physician, but the lay mind has already associated it with silicosis. This is greatly to be regretted, because the coupling of silicosis and siderosis will inevitably give the benign significance of the latter the fearsome connotations which, in non-medical understanding, have become associated with the former. And this bad name, improper and undeserved as it is, will cause a lot of trouble—in employee suspicions, reactions, claims and lawsuits—before it can be lived down.

A pointed example of the fact that, in the use of medical terms, as well as in other technical matters, "a little knowledge is a dangerous thing" is found in the current publication of the Department of Labor entitled "Women's Employment in Foundries, 1943," where the following appears: "The general environment of the foundry, affecting all workers, is not only relatively unpleasant but more or less dangerous, partly because of the accident hazard and partly because of the danger of silicosis, siderosis, and other ailments, due to the air being laden with silica and metallic dust." How many women who would otherwise be interested in foundry employment, where they are sorely needed at this time, may be deterred from accepting such work through the fear of "contracting siderosis from the metallic dust?" If the health phases of this bulletin (Women's Bureau, No. 192-7) had been reviewed by the Public Health Service silicosis would have been handled more adequately and siderosis more exactly—as would have been eminently fair to both.

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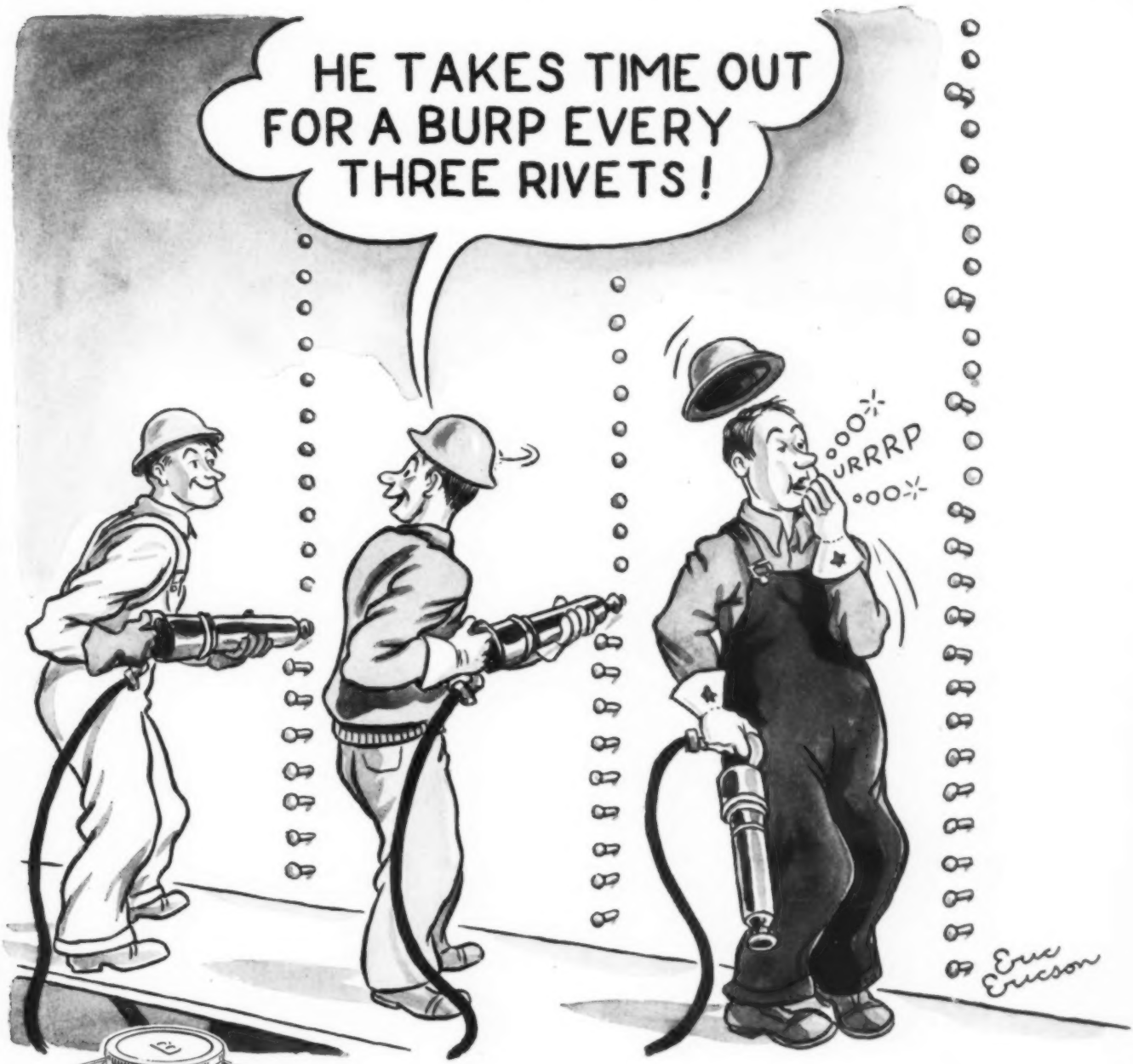

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INDUSTRIAL HEALTH and DISEASE

American Medical Association Council on Industrial Health

THE Council on Industrial Health is able to report, as in other years, a constantly widening sphere of interest and experience within the medical profession itself, in the government, in labor and in management. This fact should be borne in mind in all discussions of postwar medical planning.

Professional Relations

DURING the year the field program of the Council has carried its representatives to all of the most important industrial states. Although many of the collaborating state and county medical society committees are inactive for a variety of causes, in some areas the response to the Council's recommendations has been most encouraging. Efforts to develop demonstration centers in which industrial health service, particularly for small plants, could be developed on a cooperative basis between local medical organizations and local manufacturers have been favorably received in a few localities. Discussions about the support of such projects have occurred with the Kellogg Foundation. The growth of industrial health depends on good local and state medical leadership. Further improvement in this direction is of paramount importance and must always constitute a major share of the Council's activities.

The interest of specialty groups in the medical requirements of industry and of the employed population needs encouragement. The obvious approach has been through committees already appointed by most of the sections of the Scientific Assembly and through them to other allied professional organizations. Excellent contributions have been made in the fields of industrial dermatology, ophthalmology and obstetrics and gynecology. The Council expects to develop a series of conferences on pertinent topics in conjunction with these special committees. Two under consideration relate to the control of industrial noise and of illumination in the working environment, to be sponsored by the committees on industrial health in the appropriate sections. A series of reports is currently in preparation under the general title of "Surgical Principles in Industry," and the Industrial Health Committee in the Section on Practice of Medicine is sponsoring a report on "Heat Sickness." Another proposed conference will discuss the subject of case finding in industry with particular reference to chest surveys. It is planned to invite representation from the Section on Radiology, from the Committee on Industrial Tuberculosis recently created by the National Tuberculosis Association and from the U. S. Public Health Service. These developments suggest the many ways in which the Council can bring special information and facilities to bear on industrial health problems.

The American Dental Association has recently organized a Committee on Industrial Dentistry attached to its Council on Dental Health. The Secretary of the Council has been invited to act as a consultant to this committee, and it is expected that there will be many opportunities for mutually helpful activity.

The Council continues to recognize the growing importance of the industrial nurse. During the year a report entitled "Standing Orders for Nurses in Industry" was prepared and widely distributed as a means of improving the professional status of the industrial nurse and defining her relations with supervising medical authority, management and the worker. About ten thousand reprints of this publication have been distributed, mainly on specific request from interested agencies and individuals. Hundreds of individual requests have come from the industrial nurses themselves. Some form of official liaison between the Council and the official nursing organizations interested in industrial health is now being considered.

Professional Education

ATTENDANCE and diversity of interest at the annual congresses on Industrial Health have steadily improved. The proceedings of these congresses as published each year in the Industrial Health Number of THE JOURNAL and as separately reprinted are in steady demand. These meetings represent one of the most effective educational accomplishments of the Council.

A resurvey of the existing status of medical education in the industrial health field has just been completed. Since the Council has interested itself in the matter, the average number of hours of required lectures in the undergraduate curriculum has nearly doubled. Better provision of clinics, demonstration material and bedside instruction, as well as improved integration of industrial etiology in all clinical teaching, are the most essential needs. Short courses of the introductory or refresher type continue to be held under the auspices of medical schools, state medical societies and in combination. The Council has been greatly interested in the current plans for the development of a certifying board in the field of industrial health.

To intensify interest in the educational problems of industrial health both as such and in relation to the whole field of preventive medicine, the latest congresses on Industrial Health and on Medical Education and Licensure were conducted together. This experiment merits further exploration and repetition. Active participation by the Council on Medical Education and Hospitals will be requested in these and all other details of professional preparation for industrial health service.

Inquiries received from many sources about industrial health activity and procedure are steadily increasing. This clearing house function is becoming a real factor in the Council's informational and educational program. Cooperation from many authorities makes this service possible.

Other Interested Agencies

THE COUNCIL continues to foster close working relations with management, labor, insurance and governmental agencies. These contacts are useful, not solely as a means for broadcasting the health and economic advantages of industrial health serv-

From *J.A.M.A.*, April 29, 1944.

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ices, but as unusually promising experiments in the field of public relations. The education of management will, whenever possible, be undertaken in conjunction with the special agencies already set up in the National Association of Manufacturers and the Chamber of Commerce of the United States. Channels of information considered particularly effective will be the training courses in schools of business administration and in technical schools, direct collaboration with manufacturing groups, chambers of commerce, service clubs and trade associations, and publications reaching these agencies.

Similar procedure is applicable to the individual worker and to labor organizations as a means of support from that quarter in the development of adequate industrial medical service. Steps in that direction will be more labor participation in the Congress on Industrial Health, investigation of health education practices in union organizations, use of labor publications as a means for disseminating dependable medical and health information, and collection of data on medical and hospital services sponsored by labor organizations.

The casualty insurance companies, acting through their joint claims committee, have continued to interest themselves in maintaining some regular means for direct consultation with the Council. Two recent meetings have demonstrated many points of mutual interest in the fields of rehabilitation, industrial physical examinations, standardization of report forms, choice of physician and publication of data illustrating the status of medical relations under workmen's compensation.

Many agencies in the government have an unusual interest in industrial health. The Council has maintained lines of communication with appropriate agencies and individuals in the Army, Navy, Veterans Bureau, Selective Service, the U. S. Public Health Service, the U. S. Maritime Commission, the War Manpower Commission, the Federal Security Agency and the U. S. Civil Service Commission. Representatives from a number of these agencies have participated in the meetings of the Council. The Secretary of the Council on Industrial Health has recently been invited to sit on the Rehabilitation Advisory Council of the Office of Vocational Rehabilitation, Federal Security Agency. Steps are also being taken to keep informed about developments in the newest field of occupational medicine —aviation.

Industrial Health Education

A REPORT has been formulated representing the best opinion of the Council and of the Bureau of Health Education regarding means for bringing to the industrial worker a realization of the benefits of good health and the necessity for assumption of some personal responsibility therefor. This whole field needs much exploration. The Council believes that the use of *Hygeia* represents an unusual opportunity for the furtherance of this kind of program and will request the editor of that publication to arrange for the inclusion of material regularly which can be reproduced as health posters for wide distribution in industry.

Industrial Physical Examinations

A REPORT on industrial physical examinations has been completed and widely distributed. This early phase of the Council's activity in this field will shortly be supplemented by additional material to include an outline for physical examination of women, examination of the cardiovascular system, examination of the eyes and the establishment of physical, mental and neurologic levels as aids to personnel departments and supervisors in the placement of workers in suitable occupations.

The Council has authorized its Committee on Physical Examinations to establish at the earliest convenient time contact with labor and other interested organizations with a view to discussing the whole problem of pre-placement physical examinations in industry. This procedure is considered particularly important at the present time because of the necessity for re-employment in industry of disabled veterans.

Industrial physical examinations inevitably uncover many conditions needing medical attention. The Council is formulating recommendations calculated to promote cooperation between industrial physicians, private physicians and community health facilities so that these problems may be given adequate medical attention at the earliest opportunity.

Workmen's Compensation

THE COUNCIL'S interest in the special problems associated with workmen's compensation is expanding considerably. As in the past, particular attention will be paid to the preparation of reports about trauma and disease, disability, evaluation and individual occupational injuries and diseases. Discussions of medical relations under workmen's compensation are now a regular and successful feature of the annual congresses on Industrial Health. Recently contact has been established with workmen's compensation administrators through the officers and directors of the International Association of Industrial Accident Boards and Commissions. It is now proposed that the Council, through its Committee on Workmen's Compensation, apply for associate membership in that organization. A manual on workmen's compensation administration for physicians is in the planning stage and will emphasize prevention and rehabilitation as well as administrative details. Cooperation from the Bureau of Legal Medicine and Legislation and the Bureau of Medical Economics is especially needed and regularly invited. In furtherance of these plans an informal conference is being planned by the Committee on Workmen's Compensation to which interested and influential authorities will be invited.

Research and Reports

THE TREATMENT of silicosis with aluminum, the derivation and extent of pulmonary sarcoid in the industrial population and the pseudonodulation found in welders are matters of current investigation by the Council's Committee on Research and Reports. Cooperation by roentgenologists and pathologists in the accumulation of dependable data along these lines is being organized.

The Council on Industrial Health and the Council on Pharmacy and Chemistry, acting jointly, have completed a preliminary report on "The Local Treatment of Burns," which is in process of revision for final approval and publication.

Nutrition in Industry

THE COUNCIL continues to act in conjunction with the Council on Foods and Nutrition as a means of making available to physicians and industry pertinent information about essential components in the diets of American workmen, administration of vitamin concentrates by industry, the protective value of specific vitamins in specific occupational exposures, means of increasing the caloric diet of workers in heavy industry under rationing regulations and the evaluation of standards of in-plant food preparation and service.

Rehabilitation

A COMMITTEE on Rehabilitation has been created containing representation from the Council on Industrial

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Health and the Council on Physical Therapy. It has recently presented resolutions to the Board of Trustees calling attention to the fact that many factors in rehabilitation are essentially medical in nature, that programs in the Army, Navy, Veterans Administration, Federal Security Agency and Selective Service must be expected to have profound influence on certain forms of medical service and that the profession should be as widely acquainted as possible with developments in this field. This joint committee will conduct an educational service, acting through state, local and special medical societies, about methods and procedure essential to the re-establishment of disabled individuals in employment. To facilitate this form of activity the Council has recently created committees on Medical participation in Rehabilitation and on Postwar Industrial Health Planning. An exhibit on rehabilitation is being sponsored by the Council on Physical Therapy and the Council on Industrial Health as a first step in this educational activity.

Industrial Medical Service Plans

THE WIDESPREAD interest of management and labor in general medical coverage for industrial workers and their dependents strongly suggests the accumulation of as much information as possible about methods already in operation. Results of this investigation will be jointly evaluated by the Council and the Bureau of Medical Economics.

Summary

INTEREST and experience in industrial health is developing at a rapid pace, and the Council through its educational and field services is attempting to keep the profession well informed. State and local medical societies must recognize this trend and must create effective machinery to cope with these problems. Medical educators are more attentive to the need for special training in this field, but much additional effort is needed in this direction. Progress will be accelerated with assistance from the Council on Medical Education and Hospitals.

The Council is mobilizing undeveloped resources for special investigation and information through committees and consultants, mainly derived from the sections of the Scientific Assembly. Closer relations with labor, with management and with official agencies provide means for the dissemination of helpful information about industrial health. The same procedure has excellent potentialities in the field of public relations.

The Council, in company with the Bureau of Health Education, has considered practical measures for teaching personal hygiene to workers. The use of *Hygeia* for this purpose has been recommended. The fundamental basis for all preventive medical service in industry is the physical examination. The Council has prepared an outline for this procedure, soon to be augmented by additional recommendations regarding women, the eyes, the cardiovascular system, hernia and so forth.

A program of research into a number of occupational exposures is currently under way. The neglected field of medical relations under workmen's compensation is undergoing close scrutiny. Special attention is being paid to the establishment of regular means of consultation between the Council, workmen's compensation administrators and casualty insurance companies.

Special projects with other agencies in the American Medical Association are a report on burns with the Council on Pharmacy and Chemistry, an investigation of industrial medical service plans with the Bureau of Medical Economics, and reviews of the status of industrial nutrition with the Council on Foods and Nutrition. Particular attention is being directed at the rapidly growing field of rehabilitation and re-employment of the disabled in industry. A joint Rehabilitation Committee has been set up in company with the Council on Physical Therapy to promote an educational campaign throughout the profession to acquaint physicians with developments in this field and the need for maintaining high standards of professional conduct and procedure.

The Responsibility of the Physician in Industrial Practice

C. D. SELBY, M.D.,
Detroit, Michigan

IN THE preceding lectures of this course you have excellently and completely covered the field of industrial health, and I believe I am justified in assuming that you are fully informed on the great progress made in this exceedingly interesting field of medical practice in recent years, particularly during the war. You are undoubtedly acquainted with the Minimum Standards for Medical Service in Industry, promulgated by the American College of Surgeons in 1931, the more recent contributions of the Council on Industrial Health of the American Medical Association, the activities of the Division of Industrial Hygiene of the U. S. Public Health Service, and the Industrial Hygiene Bureaus of the several states; the researches of the Industrial Laboratory of the National Institute of Health, the Industrial Hygiene Foundation of America and various institutions of learning; and the work of the AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS, the AMERICAN INDUSTRIAL HYGIENE ASSOCIATION, and the committees on industrial health in the emergency structures of the Federal government. And I am sure that you know of the contributions which the physicians in industry have made.

With this vast store of knowledge available for his guidance, it is the responsibility of the physician in industry to protect the health of the industrial workers. In time of peace this is economically sound, in times of war it is an important means of conserving manpower, and at all times it is humane and in line with medicine's high principles.

HOW the physician in industry meets this responsibility you already know. I shall not repeat. Suffice it to say, his immediate objectives are:

1. To prevent occupational diseases.
2. To maintain healthful working conditions and environments.
3. To control disabilities resulting from occupational injuries and to rehabilitate those who have become handicapped.
4. To secure early diagnoses of communicable and other controllable non-occupational sickness in the employes.

These objectives entail the use of:

1. Medical and sanitary supervision of working conditions and environments, toilets, washrooms, locker rooms and in-plant feeding facilities.
2. Pre-placement and periodic health examinations.
3. Health consultations and instruction, personal as well as general.
4. Treatment of occupational injuries and diseases and rehabilitation measures for the impaired.
5. Temporary care of minor ailments and medical emergencies.
6. A good record system; and
7. Cooperative relationships with the local medical profession and the official health agencies.

This program is essentially one of sickness and disability control, and the results throughout the war so far have been more effective safer employment for the people who have impairments which limit their fitness for work on war jobs, as well as for those who are whole and healthy and can do any kind of work on any shift.

Measured by the magnitude of the war production it can be said that industry has been successful in the employment of the limited service groups, and the risk to them through occupational injuries and diseases appears to have been no greater than it is among others.

On the contrary, it might even have been less, as suggested by the fact that the accident severity rates of a large producer of war products, a large proportion of whose employes have impairments which limit

The Text of DR. SELBY'S Lecture at the concluding (March 28, 1944) session of the Postgraduate Course in Industrial Medicine, given at University of Illinois Medical College, by the Committees on Industrial Health of the Illinois State Medical Society and the Chicago Medical Society, DR. FRED W. SLOBE, Chairman.

their fitness for work, have dropped to new all-time lows each year of the war. Last year the rate was less than one-half day per thousand hours of work.

So it can be said, the responsibilities engendered by the war have been well met by the physician in industrial practice, particularly in his contributions to the maintenance of effective manpower. His wartime responsibilities need not be discussed further.

On the contrary, we may well concern ourselves more appropriately with the problems which must be met henceforward to the end of the war, during the change back to civilian production, and for some time after.

Pre-Placement Examinations

HANDICAPPED people are defined as those who have impairments of a physical nature or changes in personality which limit their fitness for work, and, consequently, cannot be approved unqualifiedly for employment. They are termed "limited service employees," and they are hired when productive jobs suited to their capacities are available and can be performed without risk to them and to others.

The process of evaluating impairments, finding suitable jobs, assigning the handicapped to them, and training them for effective safe performance is known as selective placement.

Chiefly because of manpower shortages and the necessity of employing handicapped people to maintain manpower, the trend toward selective placement has been greatly accelerated.

The key to selective placement is in the pre-placement examinations. Appreciating their importance, the physician in industrial practice has improved his examination procedures and made them sufficiently complete to serve the purposes of selective placement on a large scale. To do this he has had to rearrange his examination quarters for smooth but rapid flow of examinations. He has had to add special equipment for aid in the prompt diagnoses of visual impairments and certain diseases which restrict employability. Furthermore, he has needed to devise simple methods of recognizing unusual personality traits in so far as they relate to safety and efficiency in job performance.

For the purposes of this paper it is not necessary to discuss the various steps of the selective placement procedure, for not all of them are medical. It is sufficient to say, the decision as to placement is based largely on pre-placement examinations, and the ultimate success of the procedure in many cases rests on the medical supervision which follows placement.

The important point to make at this time is this—because of its value in the maintenance of health and in view of the permanency of employment under seniority rights, selective placement is becoming a hiring method of choice. Therefore, the pre-placement examinations are assuming a position of consequential importance. This is becoming increasingly evident as disabled veterans return seeking re-employment.

Re-employment of Veterans

AS A MATTER of fact the veterans have already come back to the plants in considerable numbers and, although the proportion of them who are severely handicapped is yet small, many have, nevertheless, acquired personality changes, mostly of a temporary nature, which are creating employment problems.

As you probably know, the Selective Training and Service Act of 1940 requires private employers, under certain conditions, to re-employ veterans who have previously worked for them, and employers generally wish to do so. But they are now learning that it is not merely a matter of just re-hiring, and many do not know what to do. Consequently, the physician in industrial practice who sees the opportunity and does something about it, is placing himself in an excellent position for the balance of the war and the uncertain months that inevitably will follow.

In order fully to safeguard the handicapped they are selectively placed and then the plant physician observes their progress periodically until they are accustomed to their work. Once they are seasoned and it is evident that the work is free of unfavorable influences, the doctor may then regard the handicapped as normal employees and give them the conventional periodic examinations accorded all employees for the maintenance of their health.

Of course, limited service employees may not be transferred to jobs that vary essentially from those of original assignment, without medical approval. In following through with the handicapped, in fact in all relations with them, it is well to bear in mind that they are probably worried about their security and, until they are assured by success on the job, they may have a diversity of personality reactions. Even so, it can be assumed that most of them are just normal people, and they should be treated as such, avoiding undue sympathy, unsought advice and too much waiting upon.

Just a final word about the rehabilitation of veterans. It has an immensely popular appeal, more or less of a political value, and many agencies and organizations are competing for the privilege. The result is much confusion and I fear certain fundamentals are momentarily being lost from sight. Hence, a word of caution.

Regardless of what the official agencies or the voluntary organizations can do for disabled veterans, and assuming that physical and personality restorations are made as complete as it is possible to obtain, the final results of rehabilitation rest with the veterans themselves and their use of the opportunities which their employers are able to make available to them. Obviously, however, the disabled veterans should be given as favorable opportunities as are available, and that is the purpose of selective placement, of which the pre-placement examinations and medical follow-ups are exceedingly important steps.

Selective placement is a means of in-plant rehabilitation, the final test of the program, and it will continue after reconversion, giving the physician in industrial practice one of the great opportunities of his career.

The Change Back

IN THE reconversion of industry I do not look for any important changes in the status of the physician in industrial practice. The demands for his service will be different, yes, but his opportunities will continue to broaden in accordance with his ability to take on new responsibilities.

The manpower problem will be lessened with the termination of war contracts, perhaps ended for a time, and there will be a period during the change back to civilian production when employment can be expected to be at relatively low levels. Because of accumulated seniority rights and the considerations required or expected of employers, veterans will be given preference in employment over temporary war workers, who are largely the women and the handicapped persons now employed in substantial numbers. No doubt many of these war workers will go back to their homes. Others will resume civilian occupations considered to be inessential during the war. Others will become unemployed.

Experiences under similar conditions have proved that claims for compensation are likely to increase, and no doubt they will this time. If so, the physician in industrial practice will find ample opportunities for his talents in the examinations of claimants, checking back on their physical and medical records, and otherwise in preparing himself for expressions of impartial opinion on questionable cases.

Incidentally, I sense a growing interest in examinations at termination of employment. I do not anticipate the general adoption of such as a feature of the change back, nor do I advocate it unless the purpose is for rehabilitating employees who have suffered occupational impairments which have inadvertently been overlooked. In my opinion well performed industrial health maintenance programs obviate the necessity of terminal examinations.

Postwar Industrial Hygiene Control

AFTER the war and once the reconversion is accomplished, a considerable industrial expansion is expected. Out of it will come new industrial hygiene problems or variations

in the old ones which will require extensions of in-plant industrial hygiene activities.

During the war this field has been extended mostly through the official agencies, and in securing personnel to meet their needs they have exhausted the supply of trained industrial hygienists and made some new ones. As excellent as the service has been, and it has been an outstanding contribution to the war effort, it is nevertheless one which industries of substantial size should have available on their premises.

The trend in this field after the readjustment period is over, when trained industrial hygienists will probably be available, will likely be in that direction, and medical departments in plants of, say, 5000 and up, will be expected to have their own industrial hygiene laboratories.

Through these laboratories I can foresee greater progress along plant housekeeping lines—such as in the maintenance of sanitary conditions in the locker rooms, washrooms, toilets, rest rooms and cafeterias, as well as in the control of occupational disease exposures.

The responsibility of the physician in industry is extending inevitably in this direction, and to meet it he must have appropriate laboratory facilities with trained industrial hygiene personnel and bacteriologists. The physician in industrial practice is truly the health officer of the plant.

Nutrition

IN-PLANT feeding of industrial workers has been given an energetic impetus by the war, and just how much of a responsibility the physician in industrial practice will acquire as a result I do not know. Certainly the medical profession has become more conscious of the effects of nutrition on health and is becoming more capable in the treatment of deficiencies resulting from undernourishment.

I suspect, when industry settles back to civilian production, and rationing is a thing of the past, that plant cafeterias will be operated very much as they were before, though perhaps with better medical and sanitary supervision. And that the plant physician will diagnose and refer deficiency cases to doctors in private practice in much the same fashion as he deals with all cases of non-occupational sickness.

Control of Communicable Diseases

IMPORTANT health problems of the physician in industrial practice will continue to be, perhaps increasingly so up to the end of the war and after, in the control of tuberculosis and other communicable diseases. It is assumed in many circles that tuberculosis, syphilis and such will be increased by the war. So far as I know, there is no substantial evidence as yet to support that opinion. Even so, industry will continue to be the most important case finding agency available to the adult population for the early discovery of these communicable diseases. The physician in industrial practice who is functioning along preventive lines will be in a much better position than the one who has no facilities for this type of service.

Parenthetically there may be some problems as yet unproved in the tropical diseases, which conceivably can be brought back by veterans from service in infected areas—malaria, etc. If such problems do arise they will have to be handled as they appear, for there does not yet seem to be any clear plan to anticipate them.

Mental Hygiene

PRIOR to the war industry was studying mental hygiene programs with some scepticism, but doctors of industry have long believed that something could be done in this field, and many of them, either consciously or not, were using psychosomatic methods in their consultations with the employees, but no definite pattern had become generally accepted.

Military experiences in this field have brought added attention to the great importance of sound personality attitudes, methods of detecting variances from the sound, and means of correcting them. I am sure that these war experiences will influence postwar industrial medicine considerably.

The physician in industrial practice must, therefore, be thinking along these lines with a view to developing a practical program in industrial mental hygiene.

Education

WHILE the practice of industrial health is not a specialty in the customarily accepted sense, it is a field that definitely does require special knowledge and preparation. Furthermore, there is a growing demand for the services of those who are specially prepared, and consequently there is also an ever increasing need for courses of training in both the under- and postgraduate areas of medical education. At present this need is being met by courses such as this. After the war we can expect a rather rapid expansion in undergraduate facilities for teaching and, with expansions of this character, we can look for recognition as specialists, but not until then can we expect that well deserved and greatly desired mark of distinction.

Physical Therapy

INDUSTRIAL physicians have long been aware of the value of physical therapy and therapeutic exercises in the treatment of major injuries and have used them concurrently with conventional care, but that has not been a general practice. As the result of progress in this field during the war I can foresee postwar developments of this nature, perhaps in the form of special hospitals, or wings in general hospitals, for the simultaneous treatment and rehabilitation of traumatic cases.

Medical Care Plans

MY FINAL suggestion is that the physician in industrial practice watch the progress in medical care plans, because he is very positively concerned although he does not now treat non-occupational conditions.

When one studies the so-called problems of medical care one concludes that there are important services already available to the employed groups which are ignored in plans now in effect and proposed. These are the services furnished by industry without cost to the employee, and there is a possibility that general medical care of the employees and their families will be ingrafted upon these.

In conclusion it can be said that the physician in industrial practice has met his wartime responsibilities very well. In doing so he has greatly broadened his program and increased his usefulness. Out of these wartime successes have come new responsibilities and suggestions for postwar activities.

NEWS, COMMENT and OPINION

—Continued from page 497.

Politics in Medicine

A FEW weeks ago in Portland a young boy was critically burned. He was taken to five hospitals before one was found with an extra bed. He died. The attending physician said he might have lived had he received hospital treatment at once. The government regulators of our daily lives have granted materials lavishly for thousands of "essential" homes in Portland. And yet Portland hospitals were denied urgently needed equipment and construction materials. Similiar conditions must prevail in other communities. Thus the country, while witnessing a political campaign of interference with the American medical profession, is forced to tolerate political ineptitude that threatens the health of whole cities. Is this a sample of what could be expected under socialized medicine? If it is, the social planners had better take their crocodile tears to another land —far away.

—Nebraska State M. J., May, 1944, quoting *North Platte Telegraph.*

That "EMIC" Program

WE WANT to remind the public and the profession this law which was enacted under the highest possible motives, is exceedingly hard to enforce. For example, suppose here is a physician who feels that the excellence of his service and the time that he gives entitles him to a fee of $200 for an obstetrical case. It is his privilege to charge whatever he wishes because that has been the privilege of all physicians with the understanding, of course,

that he will not let people suffer when they do not have funds. Medical men have been very free, as everyone knows, to go to those cases where there is no money and to give their services gratis. In this case the soldiers feels that funds have been arranged for by the government. He doesn't want charity from the physician—he hasn't been accustomed to it—his family has been capable of living on a higher level, and he expects to return to such a level of independent living. He doesn't want the doctor to do this work for nothing and doesn't understand why he should. He feels that he can hardly afford to pay the bill himself with money that he gets from the government, and he feels also that if he were not in the Army he would be making a great deal more money and so could pay his legitimate bills. At such a time he is probably worried and feels that his wife should have the best, and so he recommends that she go to the best specialist that she can get. This of course means that the specialist has three choices: (1) he must accept her at much less than his regular fee, which is hardly fair to him; (2) he must do the work for nothing, which is embarrassing to the soldier, or (3) he must turn down the case, which latter course tends rapidly to put him on the spot because it looks as if he is discriminating against a soldier's family. We believe there is a better way to handle this matter, but of course the law isn't written that way. It seems to the Editor that inasmuch as a child is nine months old when it is born and inasmuch as there is regularly given an allowance of $12 a month for each child, why not simply give the mother of the child the $108 a month (9 x $12) or some comparable sum at the time the child is born, or at an earlier period if she needs it earlier. She could then pay the bills herself. She could then engage the physician herself. Such and arrangement would not only take the heat off the health department but would also satisfy the medical profession very much better inasmuch as it would permit smooth operation of the patient-profession contractual relation. It seems too that it would be more of a compliment to the soldier and his wife. That does seem to be a much simpler and better arrangement. The law, however, just isn't written that way. It is something for the public to think about. As the matter stands now, we are in serious danger that the relations between the State Board of Health and the medical profession may be injured in the attempt to administer this law, which is so very laudable in one sense and so dangerous and difficult in another.

—From "Difficulties in Enforcement of the 'EMIC' Program," by THURMAN B. RICE, M.D., in *Monthly Bulletin Indiana State Board of Health*, April, 1944.

Hot-Weather Food Tips

INDUSTRIAL Nutrition Service, War Food Administration, suggests that ways of reducing food waste in hot weather are also ways of reducing time, labor, and expense in meal preparation, and of protecting the health; and offers 10 tips: (1) Protect milk from sunlight and heat. A pint of milk can supply approximately one-third of the daily riboflavin requirement of the average moderately active adult, if the milk is kept cold and away from the sunlight. Recent scientific evidence indicates that milk left in sunlight for 1½ hours at 60° to 72° F can lose 50% of the riboflavin, and, if left for 3½ hours at the same temperature, it can lose 72% of it. There is no loss in riboflavin if milk is kept in the dark at the same temperature. Pour left-over milk into a covered jar or pitcher. Turn over unopened cans of evaporated milk about once a month—oftener if stored where temperature is warm. This prevents the product thickening at the bottom of the can. (2) Watch all storage methods. Store fresh fruits and vegetables for short periods only. Wash fresh vegetables and shake off excess water. Do not let them stand in water, or the vitamin values will be reduced. Store vegetables in refrigerator in vegetable tray, hydrator, oiled silk bag, or in a tightly covered pan. (3) Place left-over foods in covered containers in the refrigerator. Use them as soon as possible, preferably within 24 hours after they are cooked. Foods that contain moisture spoil more rapidly than dry foods. (4) Oranges, lemons, and grapefruit should be kept in a cool place and spread out to prevent mold and rot. Handle them gently to prevent bruising. (5) Serve fresh fruit in salad frequently instead of a dessert of pie or cake. (6) Serve fresh raw vegetables in salads or as a relish with meats. (7) When cooking vegetables, save time, food value, and add appetite appeal by reducing the amount of water and cooking time to a minimum. (8) Use cooking liquids and vegetable juices in gravies, soups, sauces, and in the preparation of other foods. (9) Use freshly-cooked vegetables in salads. Reheating vegetables tends to destroy vitamin values. (10) Use beet tops as cooked greens, or chopped raw in salads. Cut crisp parts of outside lettuce and cabbage heads and combine with other vegetables.

Venereal Disease

AVAILABLE Public Health Service reports indicate that the proportion of industrial workers infected with venereal disease may range from 0.5% to 10.5% in various locations and industries. As might be expected, venereal disease rates among workers, in general, parallel prevalence of the disease in the communities where the workers are. To meet the problem, intensified by the mobilization of vast industrial and military groups, the U.S. Public Health Service, in cooperation with state and local health departments, is counter-attacking with a rapidly expanding program of public education and venereal disease control measures. Health officers are equipped for the fight. Federal expenditures for VD control in the fiscal year 1943 totaled $12,500,000 as compared with the lowest point, a Federal appropriation of $62,255 in 1935. The program for venereal disease control in industry is carried out in cooperation with the Division of Industrial Hygiene of the U.S. Public Health Service and 38 state industrial hygiene organizations. Working with war industries since the beginning of the emergency in 1940, these agencies offer consultant service to industry and are able to secure venereal disease experts to advise plants interested in launching a venereal disease control program. In the fiscal year 1943 a total of 1,488,868 industrial workers were tested for syphilis, with 31,657, or 2.1%, found to be infected. Of this number, 4,365 were already receiving treatment, 8,009 were placed under treatment, and 15,774 were investigated by epidemiological workers to trace infected contacts. Weapons for the war on venereal disease by industry, state and Federal agencies in 1944 are: Specific projects to be undertaken this year to control venereal disease in industry. A national campaign of public education on venereal disease by means of movies, radio, newspapers, magazines, pamphlets and posters. An increased number of public health clinics. Intensive research in rapid-therapy methods, utilizing sulfonamide and arsenical drugs and penicillin. Additional hospitals for rapid treatment. Distribution of larger quantities of free drugs to private physicians. Expansion of epidemiological (case-finding) personnel. The industrial VD control program to be developed in 1944 is based on the recommendations of an Advisory Committee appointed by the Surgeon General in 1942 to study venereal disease control in industry. These basic recommendations widely publicized during 1943, have been accepted by management, labor, the medical profession and public health authorities. The objectives are to find and treat venereal disease; to assure maximum utilization of available manpower by development of employment policies which are fair for both employer and employee; to coordinate community and industrial venereal disease control programs, and to bring to employees and their employers the benefits of improved health of personnel, reduction of labor turnover, absenteeism and compensation costs, with a corresponding increase in production and earning power.

Medical

MEDICINE SURGERY

INDUSTRIAL HEALTH
OCCUPATIONAL DISEASES
TRAUMATIC, INDUSTRIAL

INDUSTRIAL HYGIENE
INDUSTRIAL MEDICINE
& RAILROAD SURGERY

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FOR THIS ISSUE ONLY we have gone back to the old-style make-up in the placement of advertisements, and omitted the smaller departmental features from the front section. This was the most practical of the several ways open to us in which to conform to the current restrictions on the use of paper. In comparison with our usual page assembly, the form of this issue is, indeed, old-fashioned; but it should be noted that for many, if not most, of the other leading medical journals this form is still standard. Next month we shall resume our regular style, and restore the departments: "Comment and Opinion," "Current Articles," "Arm-Chair Philosophy and Research," "Activities of State Health Departments," "Dr. Pilgrim," and "Industrial Health and Disease" . . . . Meanwhile the news items on pages 8 and 10 regarding the INDUSTRIAL PHYSICIANS CLUB in Detroit, and the NIAGARA FRONTIER ACADEMY OF INDUSTRIAL PHYSICIANS, in Buffalo, are intriguing in their implications. Here are earnest and serious-minded groups of career men in industrial medicine, having the interest and taking the time to meet once a month for their own improvement in the art and science of their practice. This is more than a local reaction to the difficulties of travel. Can it be—with industrial medicine taking its place as the largest and most important sub-title of medicine in general—that the meetings and conferences of the larger organizations must deal only with such general problems as to leave the specific and intimate ones to the smaller groups? The annual conventions will not hold their priorities of interest and value if that is to be the trend; there is so much of the general that can be read, why travel to hear it? Possibly there is a suggestion here for program committees. . . . THE discussions on "Worker Health Education" (p. 574), and "Plant Conditions" (p. 589), were among the highlights of the St. Louis "War Conference." Seldom have more forthright discussions enlivened the printed page.

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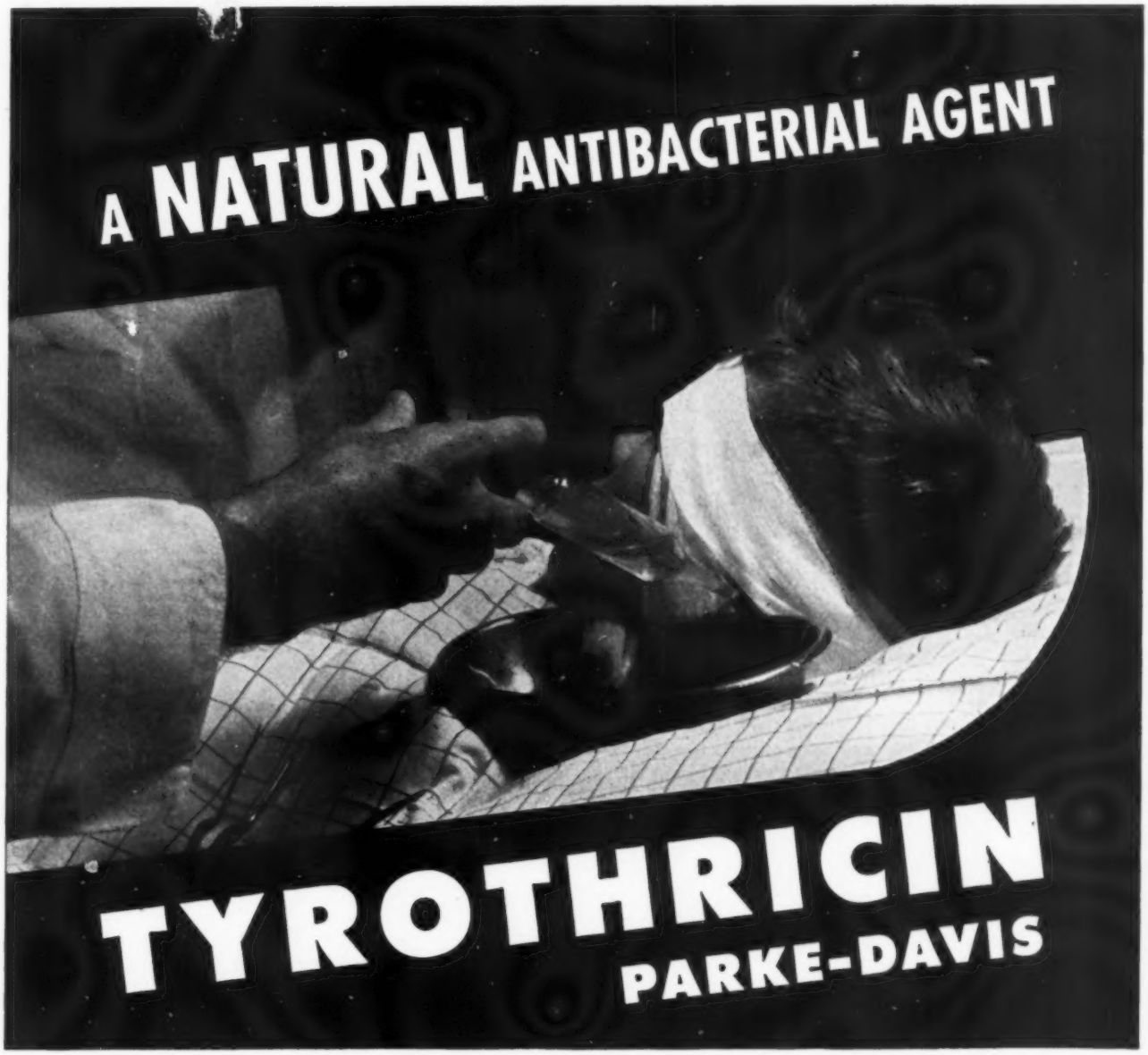

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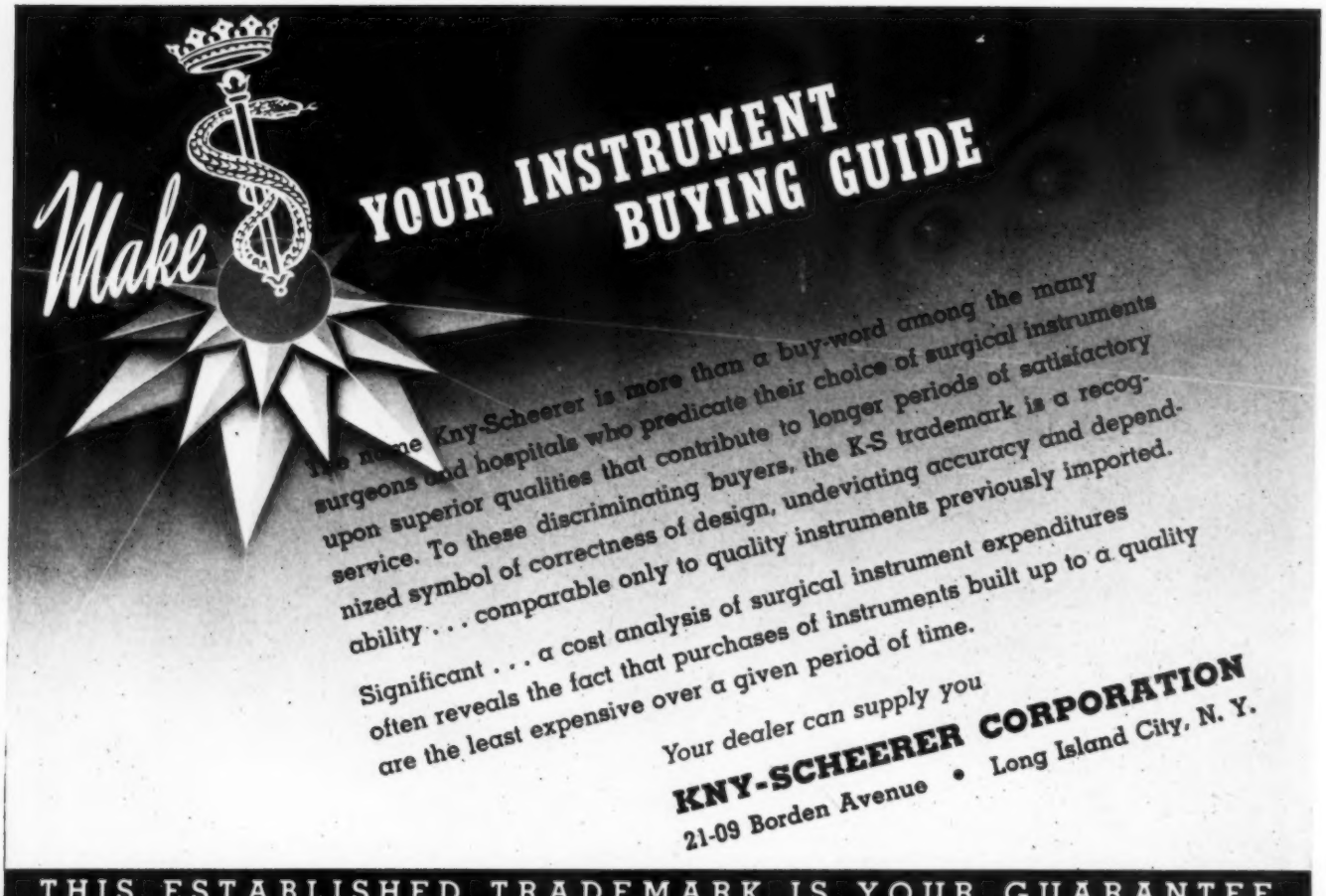
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"Mass x-raying of adult groups is the order of the day. The U. S. Public Health Service, health departments of states, counties and cities, and tuberculosis associations are engaged in x-ray surveys of a magnitude that a few years ago would have been thought visionary.

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THE object of this Association shall be to foster the study and discussion of the problems peculiar to the practice of industrial medicine and surgery; to develop methods adapted to the conservation of health among workers in the industries; to promote a more general understanding of the purposes and results of the medical care of employees, and to unite into one organization members of the medical profession specializing in industrial medicine and surgery for their mutual advancement in the practice of their profession.

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THE board of education today announced the appropriation of $200,000 for a five-year training program for doctors, nurses and safety engineers interested in industrial health programs. This is the first such course to be offered in the country.

—*Detroit Times*, June 28, 1944.

Industrial Physicians Club

IN A FORMAL meeting on May 2, 1944, the full-time industrial physicians of the Metropolitan area of Detroit met at the Wayne County Medical Society Headquarters and formed the Industrial Physicians Club. The purpose of the organization is to promote the advancement of industrial medicine and to foster a closer unity and fellowship among its members. All members of the club must be members, in good standing, of their respective county medical societies. The Executive Committee members are: W. A. DAWSON, Willow Run Bomber, Ford Motor Co., E. A. IRVIN, Cadillac Motor Car Co., L. R. MARTIN, Detroit Edison Co., S. F. MEEK, Chrysler Corporation, and J. ZEMENS, Packard Motor Car Co. The Secretary-Treasurer is FRANK J. JARZYNKA, Bohn Aluminum and Brass Corporation. The permanent address of the Industrial Physicians Club is the Wayne County Medical Society Headquarters, 4421 Woodward Avenue, Detroit 1, Michigan. Meetings are held in the evening of the first Tuesday of each month at the Society headquarters, except during July and August. Each meeting is presided over by a chairman, who also arranges the program. The chairmanship is rotating according to the alphabetical listing of the members. The membership is composed of physicians from large and small manufacturing establishments. At a special meeting on June 20, COLONEL JOHN N. ANDREWS, from the National Headquarters of Selective Service, spoke before the Industrial Club and an invited group of personnel members from most of the larger industrial establishments. COLONEL ANDREWS' subject was "Rehabilitation and Re-employment of the Disabled War Veterans."

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NIAGARA Frontier Academy of Industrial Physicians of the State of New York was established, at Buffalo, in May, 1942, "to unite the influence and endeavors of ethical industrial physicians; to further the interests of industrial physicians through an exchange of knowledge pertaining to industrial medicine; to promote better understanding between industrial physicians and other ethical medical practitioners; to stimulate progressive medical service programs in industry." A year later the organization was made permanent, and by-laws providing for active and associate memberships were adopted. The active member must be a physician duly licensed in New York State, and a member of the county medical society having its principal office within the Niagara Frontier; must devote at least 70% of his practice to the field of industrial medicine; must have been engaged in industrial practice for not less than two years; and must spend at least 50% of his time in industry. The associate member qualifies on the same basis of professional standing with 25% of his practice in the field of industrial medicine, and one year devoted to such practice. The Academy officers are: President, DR. STUART A. GOOD, Medical Director, Curtiss-Wright Corporation; Vice-President, DR. DENNIS FLYNN, Medical Director, General Motors Aviation Corporation; Secretary-Treasurer, DR. REEVE BROWN, Medical Director, General Motors Chevrolet Motor and Axle Division. These officers constitute the Board of Directors. The Academy meets on the second Thursday of each month at 888 Delaware Ave., Buffalo. Meetings are essentially round table conferences, often after a dinner session, at which the guest speaker is a specialist in medicine or a related science, following which an Academy member presents the meetings' topic from the industrial physician's point of view. Then there is a general discussion interval of about 30 minutes, and the meeting closes with a Problem Period, extending sometimes to an hour in length, for the discussion of special problems and specific cases. The Academy's experiences with its meetings have been very satisfactory: "all of us have gained onsiderable knowledge as a result of this organization. We feel that organizations of this type should be recommended by the industrial medical societies, particularly in large industrial cities. We know that we have increased the prestige of industrial medicine locally. We are interested in our local industrial nurses' organization, and have assisted them by providing speakers at many of their meetings."

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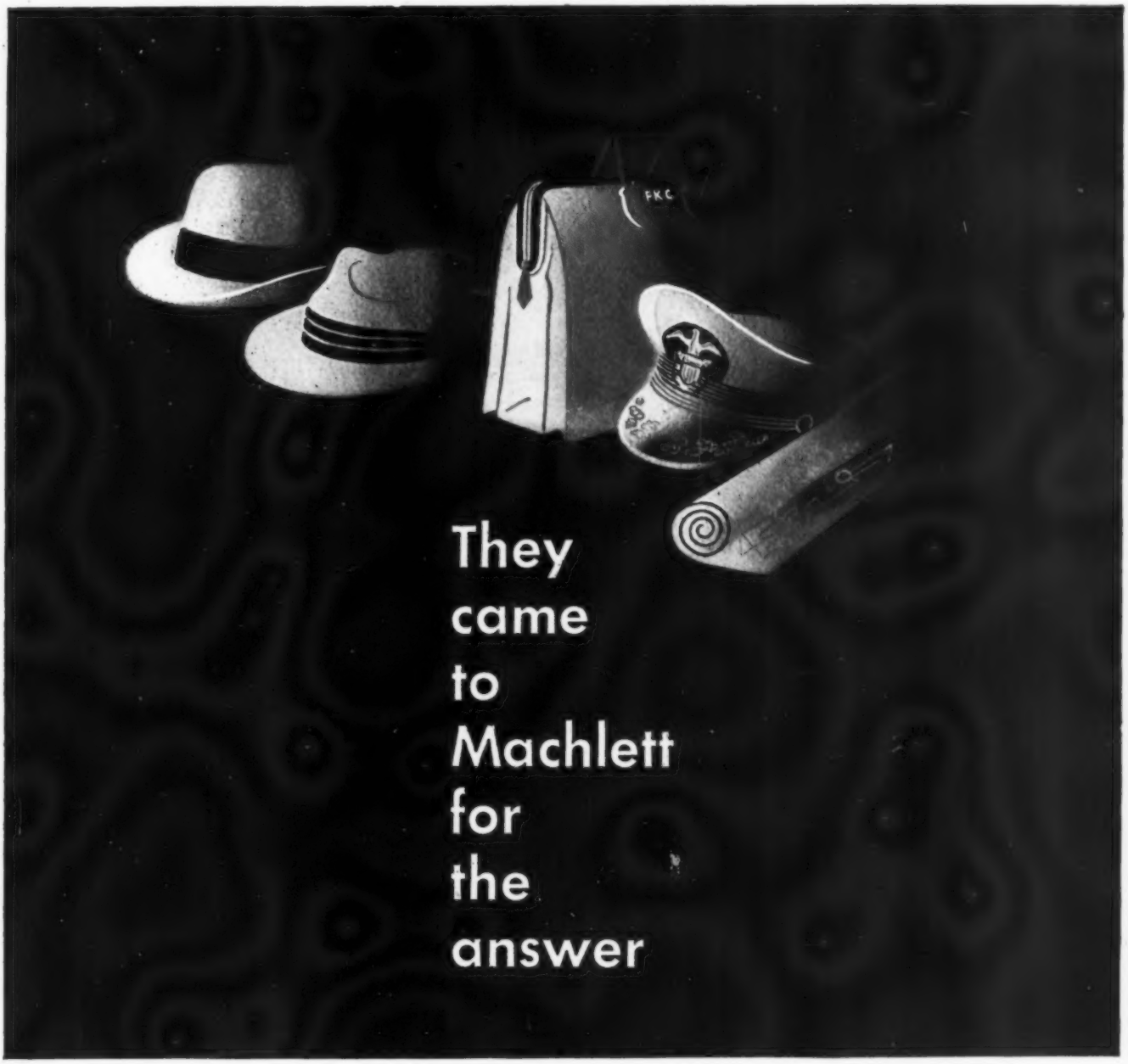

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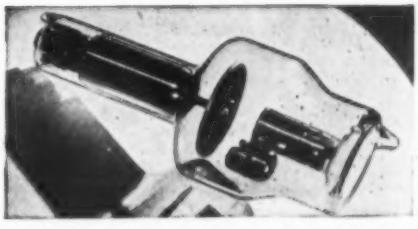

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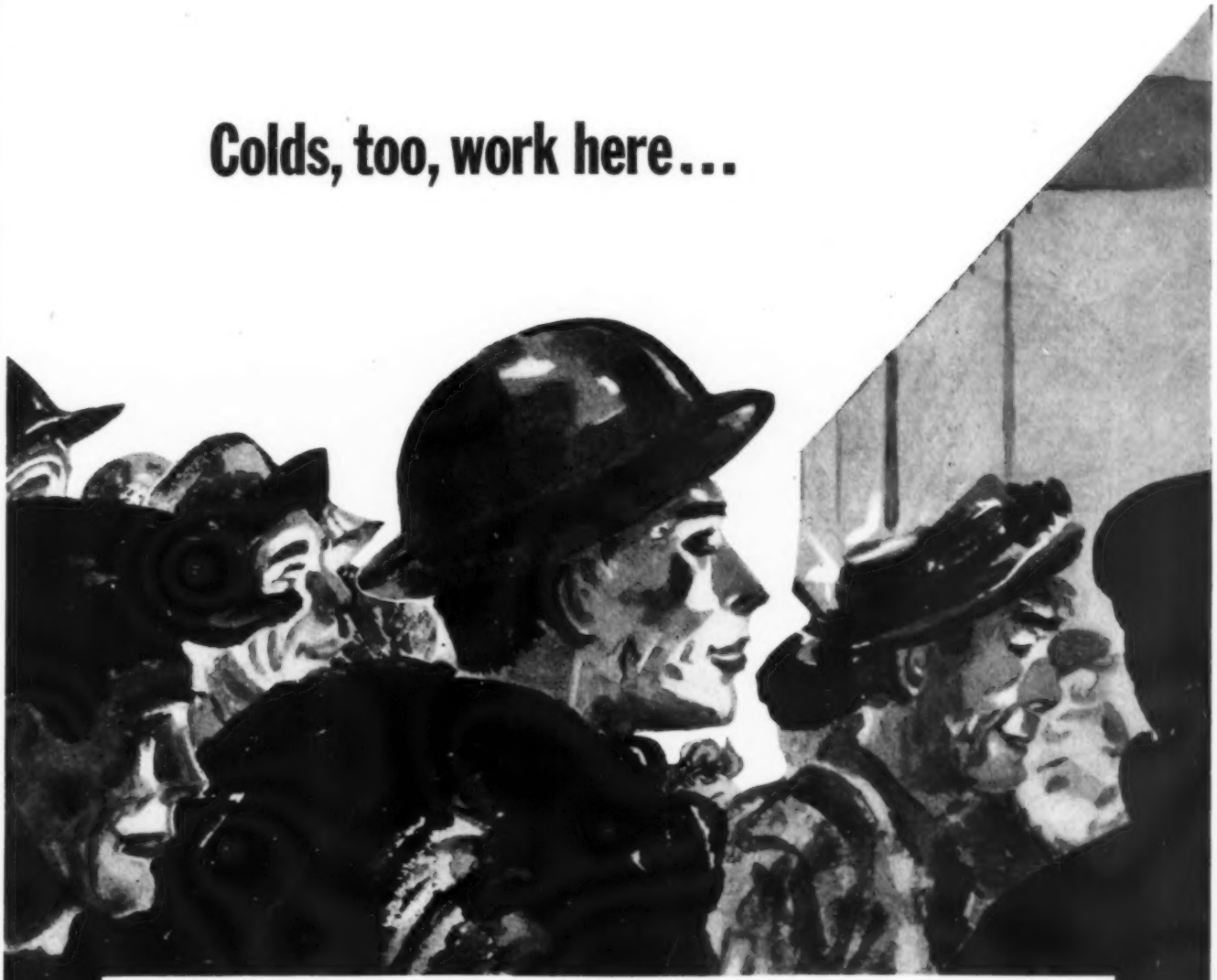

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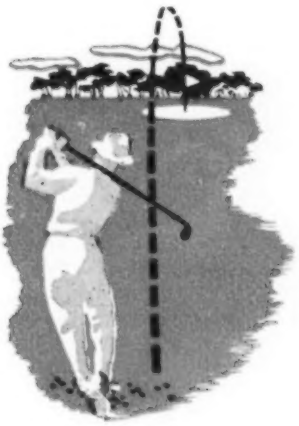

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end of that period, 19 of the 34 men showed clinical improvement. Disappearing or appreciably lessening were shortness of breath, coughing, chest pains, and fatigue. The other 15 cases showed neither improvement nor deterioration. But doctors considered this notable because the men involved had continued the exposure to silica dust. Other men under observation who were untreated by aluminum therapy showed progression of their silicosis in six of nine cases. Larger testing was then undertaken at Washington, Pennsylvania, where subjects came from brick making and refractory plants, foundries, rock quarries, and sandblasting jobs. An initial group of 33 diseased subjects who had been exposed to concentrations of 17% to 97% free silica, all showed improvement. A second group of 452 among whom were 143 disabled silicotics, was also tested. Results showed improvements in 135 of the serious cases with six unchanged and two getting worse. Comparable beneficial effects followed the treatment in the less serious cases. Definitely not a substitute for dust control programs, the new treatment appears to its researchers to have both preventive and therapeutic values. It cannot restore lung tissue to normal after fibrotic change has developed, but if it lives up to its experimental results it will be a great stride forward in industrial medicine. One of its first direct results might be to reduce death rates in mining operations and depress compensation insurance rates.

—*Business Week*, June 24, 1944.

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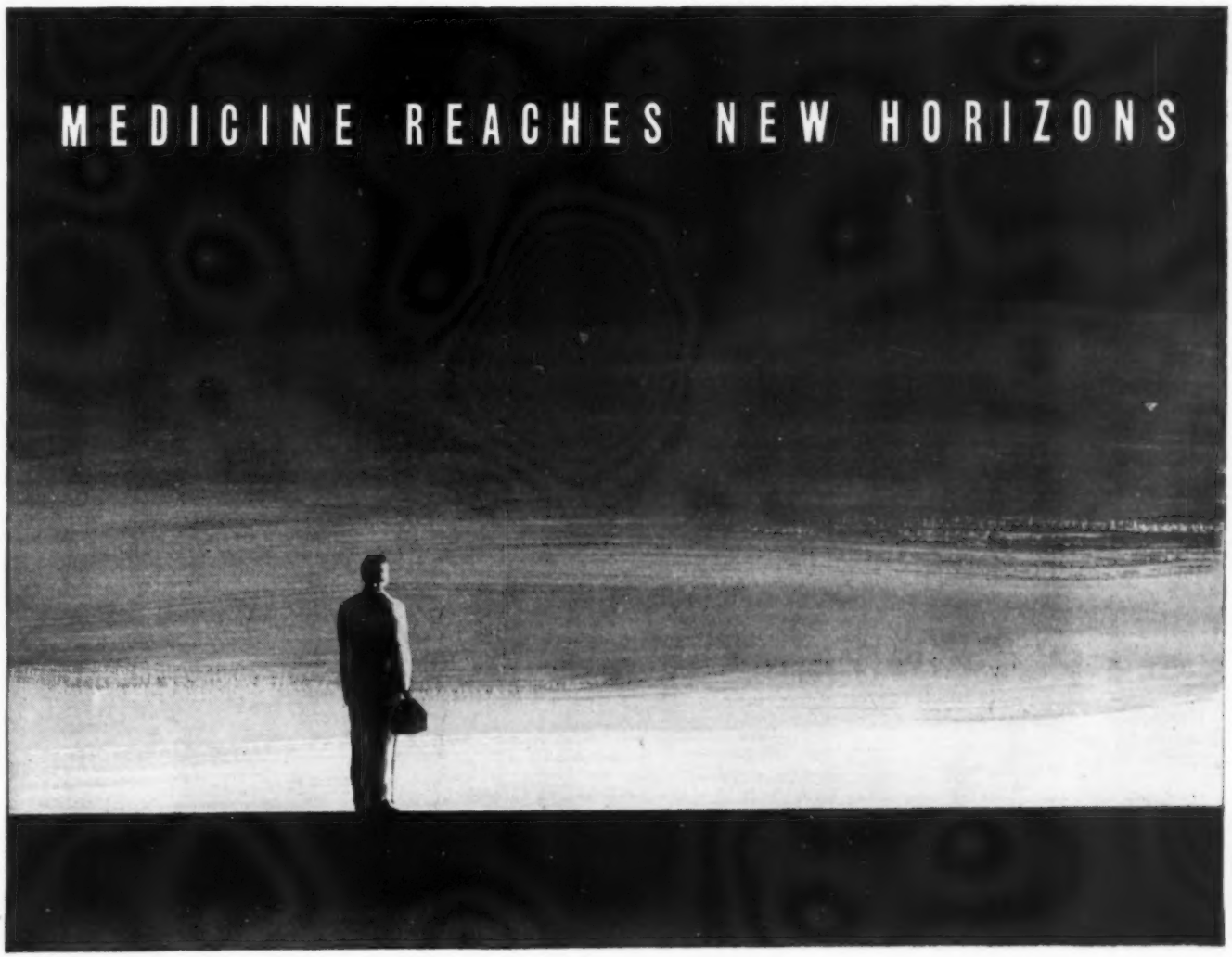
Women

THERE is considerable controversy between industrial physicians and obstetricians and gynecologists as to the nature of the obstetric and gynecologic problems of women in industry. The committee unanimously has recommended that a preemployment pelvic examination should be a routine to evaluate the pelvis for major conditions, as tumors or prolapse. Obviously, where a vaginal examination was not feasible, a rectal examination would suffice. These findings, as all other medical findings, should be confidential, and the purpose of the examination should be for the protection of the prospective employee as well as for the protection of the employer. The findings should be of value in job placement. Furthermore, findings prior to employment may be particularly desirable and helpful subsequently in the event of medicolegal action. Pregnancies and their complications, dysmenorrhea, menopausal disturbance, sterility and gynecologic states in general should be managed by the employee's personal physician or obstetrician and gynecologist. Ordinarily, obstetric or gynecologic diseases are not attributed to employment. Subsequent study should reveal whether any types of employment, particularly where there is inadequate protection and safeguards, may produce complications or conditions of obstetric or gynecologic nature. It will be necessary also to determine whether or not there are any types of employment or working conditions which may aggravate existing obstetric or gynecologic ill health.

—From Report of the Committee on Women in Industry, H. CLOSE HESSELTINE, Chairman, Sixth Annual Congress on Industrial Health, *J.A.M.A.*, May 27, 1944.

"Of Good Report"

DR. HERMAN L. KRETSCHMER, president of the American Medical Association, in a nationwide broadcast, June 27, reported the lowest death rate "in our history, except for a slight, not serious, rise last year. Despite the large number of doctors in the armed forces, the people of this country have never enjoyed better health than now. There have been no major epidemics like the influenza of the last war. The venereal diseases are almost completely controlled; and it is likely that the combined use of the sulfonamide drugs, of penicillin, of heat, and of new techniques for using these agents, may eliminate venereal diseases entirely within a



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*Schwartz, L., Med. Dir., U. S. Public Health Serv.: Manual of Indust. Hygiene, 1943, p. 174.

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few generations. Tuberculosis, which usually rises greatly during war, has now reached an all-time low. During the past year more than 3,000,000 babies were born in the United States with the lowest maternal and infant death rates in our history—and this in the midst of the war. The wartime health picture of our country is most satisfactory."

Plant Visit

SIXTY members of the NEW ENGLAND CONFERENCE OF INDUSTRIAL PHYSICIANS were guests of the American Optical Company on June 14. In the morning visitors were taken on a tour of inspection through the plant, and then met for luncheon in the company auditorium. GEORGE WELLS, company president, extended greetings, and DR. THEODORE L. STORY, medical director, in-

—*Continued on page 561.*

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2 It markedly improves liver and gallbladder function,

3 It stimulates renal clearance of toxins by diuresis, and

4 It releases colloidal sulfur, so frequently deficient in the arthritic economy. *Try it in your next case!*

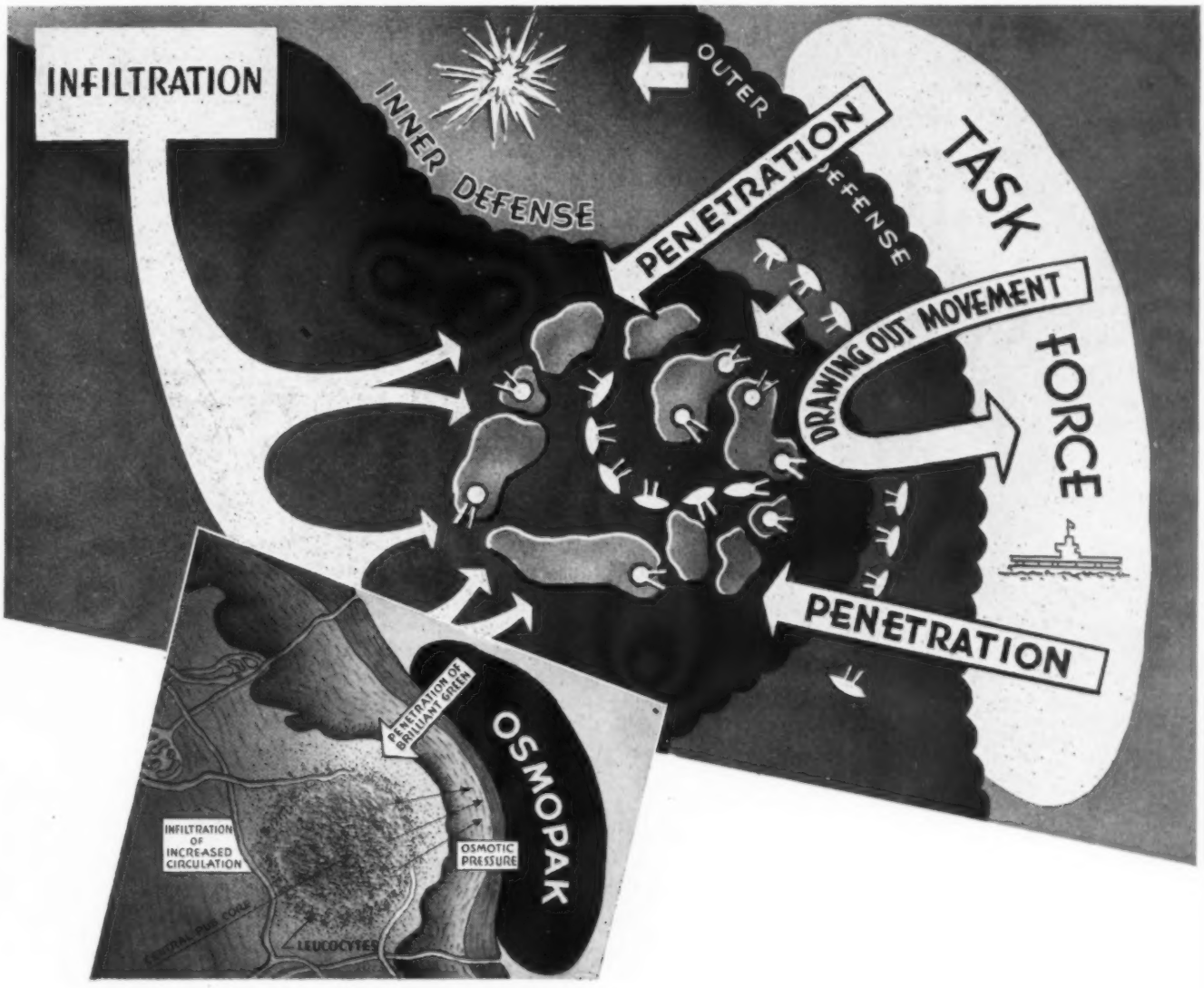
Formula: Occy-Crystine is a hypertonic solution of pH 8.4, made up of the following active ingredients — sodium thiosulfate and magnesium sulfate, to which the sulfates of potassium and calcium are added in small amounts, contributing to the maintenance of solubility.

Trial supply and full data gladly sent on request to

OCCY-CRYSTINE LABORATORY
SALISBURY, CONNECTICUT

OCCY-CRYSTINE

the sulfur-bearing saline *detoxicant-eliminant*



STRATEGY IN DEPLETION

In the edematous, cutaneous infections (furuncles, carbuncles, mild lymphangitis, etc.)—the destruction of pathogens rests more upon the defense mechanisms of the host than upon applied bacteriostasis.

OSMOPAK in these infections affords a positive strategy in defense: *1)* by an effectively high osmotic pressure, it depletes edema and improves circulatory conditions; *2)* by deep-staining bacteriostasis, it controls the area of infection and prevents local reinfection.

OSMOPAK presents a soft colloidal gel of Magnesium Sulfate, Benzocaine and Brilliant Green. Supply 1½ lb. Jars.

O S M O P A K

(Reg. U. S. Pat. Off.)

IRWIN, NEISLER & CO. SINCE 1886 **DECATUR, ILLINOIS**

CRITICAL ACCIDENT STUDY CONFIRMS THE NEED FOR *Adequate Breakfast*

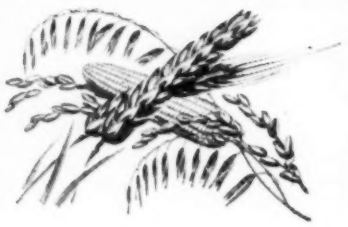
The recommendation, so widely advanced by nutritionists and medical authorities—that breakfast should provide from ¼ to ⅓ of the day's total food intake—gains added substantiation through analysis of 1009 consecutive accidents at an ordnance depot.*

The period, during which these accidents occurred, July 19, 1943 through November 7, 1943, was most favorable from a weather standpoint, since winter tends to increase accident rates. The study was not concerned with the immediate cause of each accident, but rather with predisposing factors.

Four important conclusions were reached: (1) the accident rate for women is lower than for men; (2) it is higher in young persons; (3) the frequency of accidents varies during the course of the work period; (4) the greatest number of accidents occurs between 11 A.M. and 12 noon, the last hour before lunch.

One of the reasons given for this morning peak accident incidence is that little or no breakfast is eaten by the workers. Since work starts at 7 A. M., an average of 6 hours elapses between the skimpy morning meal and the noon meal. During these hours the accident rate rises progressively, reaching peak during the last hour of the morning period. Increasing hunger leads to nervousness, impaired judgment, lessened concentration on the work. Diminishing glycogen reserves hasten the onset of fatigue, an important factor in accident rates.

From this study it may well be concluded that the nutritionally adequate breakfast should prove a valuable adjuvant in lowering accident rates. As a basic breakfast pattern, nutritionists recommend fruit, cereal, milk, bread and butter, providing not only about 600 calories, but notable amounts of all essential nutrients as well. If more is required, this breakfast is easily augmented by the addition of other suitable foods.



*Mann, J.: Analysis of 1009 Consecutive Accident Cases at One Ordnance Depot, Indust. Med. 13:368 (May) 1944.

The presence of this seal indicates that all nutritional statements in this advertisement have been found acceptable by the Council on Foods and Nutrition of the American Medical Association.

CEREAL INSTITUTE, INC.
135 SOUTH LA SALLE STREET • CHICAGO 3

DOCTOR: *"Sure, you can go right back to work. These two Anacin will relieve that headache fast!"*

NURSE: *"Don't worry about your first-day slow-down. Take these two Anacin to relieve your annoying menstrual pains!"*

For the pains *of minor neuralgia, simple headaches*, regular menstrual pains, Anacin offers medically proven ingredients in skilful combination.

Packed for industrial use in sanitary, sealed envelopes for easy dispensing. 250 envelopes of Anacin cost $2.83. Each envelope contains 2 tablets—only about 1¢ a dose. Ask your purchasing department to order a supply of special industrial dispensing boxes for your use. The Anacin Company, Distributors, 257 Cornelison Avenue, Jersey City 2, New Jersey.

ANACIN

REG. U.S. PAT. OFF.

a complete unit for approved contraceptive technique

provides for patient comparison of Jelly and Cream (no extra cost)

The Koromex Set Complete contains in a handsome case:

Koromex Diaphragm with special pouch

Koromex Trip Release Introducer (takes all size diaphragms)

Tube Koromex Jelly (higher lubricating factor)

Tube Koromex Cream (lower lubricating factor) formerly H R Emulsion Cream

Set Dickinson-Freret Fitting Charts

Price of Koromex Set Complete is only that of the Koromex Diaphragm and Koromex Trip Release Introducer. Attractively packaged with removable label. To prescribe, just write "Koromex Set Complete" and state size of diaphragm. **Write for literature.**

Holland-Rantos *Company, Inc.*

551 Fifth Avenue, New York 17, N. Y.

SERVING ON ALL FRONTS...

SULFANILAMIDE

SULFAPYRIDINE

SULFATHIAZOLE

Sulfanilamide and its derivatives are rendering vital wartime service on all fronts. On fields of battle all over the world, as well as on the home front, these compounds provide the physician with remarkably potent weapons with which to combat wound infections and a wide variety of infectious diseases.

THIS GROUP OF COMPOUNDS IS EFFECTIVE AGAINST:

PNEUMOCOCCI **GONOCOCCI**
STAPHYLOCOCCI **MENINGOCOCCI**
HEMOLYTIC STREPTOCOCCI **FRIEDLÄNDER'S BACILLI**
ESCHERICHIA COLI
Lymphogranuloma Venereum
Certain Urinary Tract Infections
Trachoma *Chancroid*

Literature on Request

ARMY E NAVY
Speed the Victory with War Bonds

MERCK & CO., Inc. *Manufacturing Chemists* RAHWAY, N. J.

prenatal supports • orthopedic

pendulous supports

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FOR PHYSICIANS AND SURGEONS
NEW HELPFUL INFORMATION ON
ANATOMICALLY DESIGNED SUPPORTS

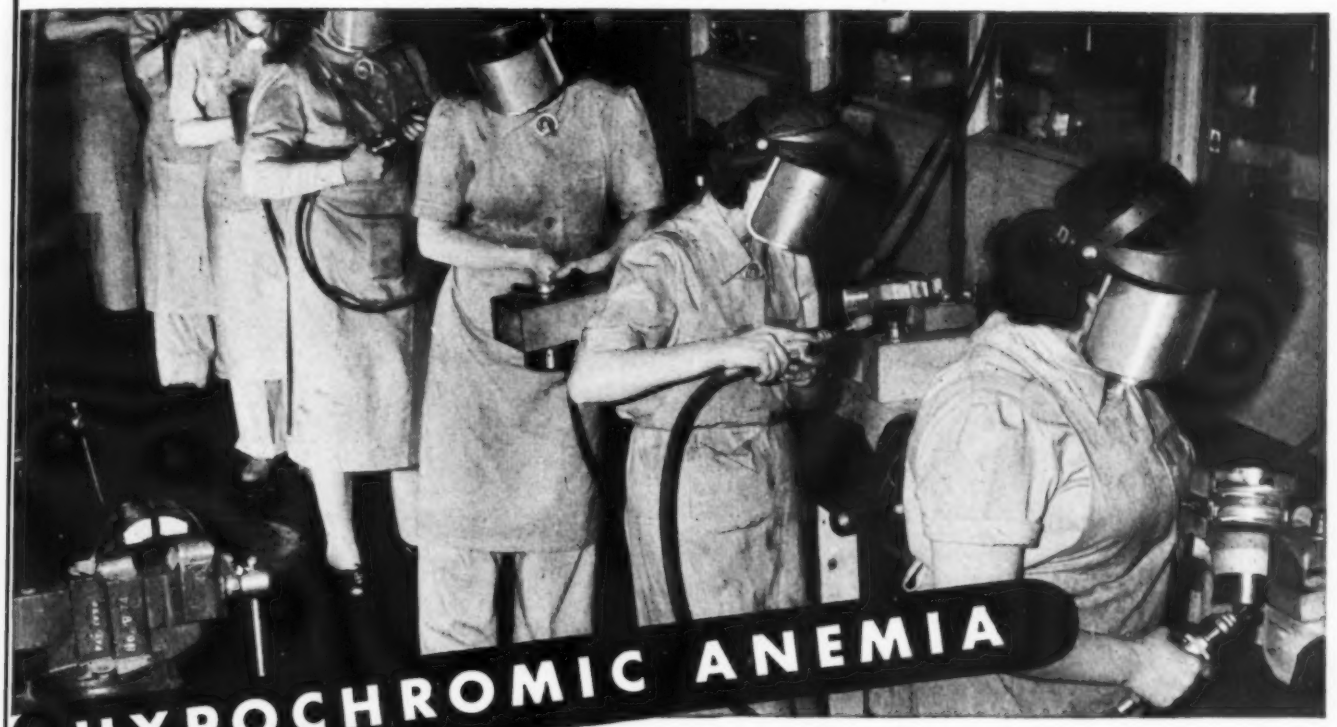
The supports presented in this thirteenth edition of our Reference Book are the results of thirty years of research and successful experience, in close cooperation with physicians and surgeons. The book contains much new material, with comparative illustrations, showing how Camp Scientific Supports can aid the therapy required in various ailments and figure faults of men, women and children. A copy will be gladly sent to you upon request.

S. H. CAMP & COMPANY, JACKSON, MICHIGAN

Offices in NEW YORK • CHICAGO • WINDSOR, ONT. • LONDON, ENGLAND

World's Largest Manufacturers of Scientific Supports

postoperative supports • hernia



HYPOCHROMIC ANEMIA

and Industrial Productivity

Routine hemoglobin estimations have been reported to reveal that increasing numbers of industrial workers, especially women, are suffering from hypochromic anemia.* Though usually low-grade—the hemoglobin level rarely is below 60%—this anemia should not be regarded lightly. Its implication is easy fatigability, carrying a two-fold threat: it lessens acuity, thus increasing the danger of accidents; it lessens efficiency, thus interfering with quantity and quality of work output.

Heptuna provides all essential factors needed to restore not only the blood picture but the patient as well. Since this anemia usually is the result of multiple nutritional deficiencies, Heptuna proves particularly applicable. In addition to an adequate amount of highly available iron it provides the fat-soluble vitamins A and D, and the B-complex vitamins (partly derived from liver extract and yeast) so essential to iron utilization, better appetite, and improved endurance. In most instances one capsule per day together with the daily diet proves adequate in correcting the anemia.

*Editorial: Iron Deficiency in War Time, Am. J. Digest. Dis. 11:94 (Mar.) 1944.

J. B. ROERIG & COMPANY

536 Lake Shore Drive • Chicago 11, Illinois

Heptuna

EACH CAPSULE CONTAINS:

Ferrous Sulfate	4.5 gr.
Vitamin A	5000 U.S.P. Units
Vitamin B_1 (1 mg.)	333 U.S.P. Units
Vitamin D	500 U.S.P. Units
Vitamin G (0.50 mg.)	500 micrograms

together with liver concentrate (vitamin fraction), derived from 4 grams of fresh liver, and dried brewers yeast.

Facts for the patient inquiring about the

SAFETY

OF INTERNAL MENSTRUAL PROTECTION

Tampax menstrual tampons are more than merely *adequate* for catamenial protection...they possess a wide margin of safety, particularly on prolonged use.

Careful and extended research by authorities in different parts of the country—involving studies on bacterial flora, hydrogen ion concentration, vaginal mucosal biopsies, glycogen determinations and gross examinations in hundreds of cases—has failed to reveal any untoward results from the regular use of this form of menstrual hygiene.

For instance, one investigator[1] reports, "By exact research in 218 women who wore tampons regularly during their menstruation for one year and over, no production of irritation or discharge, vaginitis or cervicitis was found."

Another[2] states that, in 110 subjects using tampons throughout each period for a minimum of one year to a maximum of two years, "there was no evidence of any irritation of the cervix or vagina by the tampon."

A third clinician[3] (with a series of 21 subjects) writes that "no evidence was observed of any infection carried by the tampons."

Finally, the general consensus would seem to indicate that intravaginal menstrual protection will not cause blocking of the flow or cramps—rather that "tampons actually acted as a wick to draw away the blood from the cervix."[1]

Thus, Tampax can be soundly recommended to patients of menstruating age—on the basis that "the evidence is conclusive that the tampon method of menstrual hygiene is safe, comfortable and not prejudicial to health."[4]

(1) West. J. Surg., Obst. & Gyn., 51:150, 1943. (2) Am. J. Obst. & Gyn., 46:259, 1943. (3) Clin. Med. & Surg., 46:327, 1939. (4) Med. Rec., 155:316, 1942.

TAMPAX *accepted for advertising by the Journal of the American Medical Association*

IM-74

TAMPAX INCORPORATED
PALMER, MASSACHUSETTS

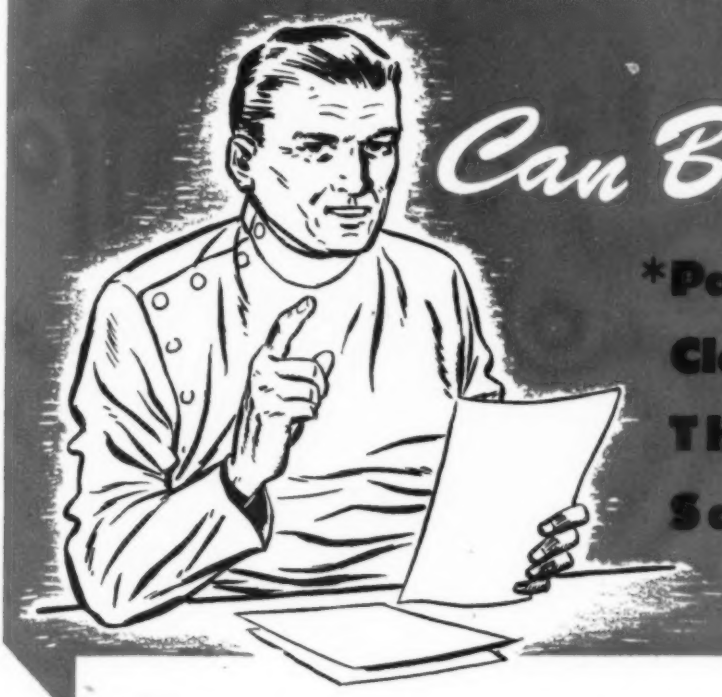
Please send me a professional supply of the three absorbencies of Tampax.

NAME_____

ADDRESS_____

CITY_____

OCCUPATIONAL DERMATITIS



Can Be Controlled

***Pax Industrial Skin Cleansers Help Fight This Production Saboteur!**

Paxsavalened Heavy Duty Skin Cleanser has attained a place in industry unequalled by any other product developed for skin cleansing. Approved and accepted by executives in thousands of organizations, Pax Heavy Duty incorporates an outstanding formula to provide an efficient and non-irritant skin cleanser having these superior qualities:

1. pH as low as ordinary drinking water.
2. No free alkali or other caustic.
3. Balanced, buffered detergent salts.
4. Integrally blended, specially processed, long-lasting emollient.
5. Contains a flat-type vegetable scrubber — no harsh abrasives.
6. Granulated and free-flowing — does not stop up drains.
7. Profuse, quick, rich lather in any water — warm, cold or hard.
8. Thoroughly cleans grease and grime from pores.
9. Mild and bland — leaves skin soft, healthy and supple.
10. Economical — retains uniformity of mixture — does not cake or harden.

Paxsavalened Heavy Duty Skin Cleanser, and other Pax products, definitely assist in the prevention of dermatitis, and cost no more than ordinary, dangerous dirt removers — in most cases less. Specify Pax next time you order skin cleanser.

Feel free to consult Pax laboratory technicians at any time regarding the problem of preventing industrial dermatitis among your workers — there is no obligation.

G. H. PACKWOOD MFG. CO.
1545-55 Tower Grove Ave. • Saint Louis 10, Missouri

PAX

*Reg. U. S. Pat. Off.

Hay Fever Relief

often begins in 10 minutes

with a simple 6 gr. tablet of
$NaCL$, NH_4CL, KCL — nothing else

℞
"Trial is Proof"

50 TABLETS—6 GR.
NAKAMO BELL
CONTAINS SODIUM CHLORIDE AMMONIUM CHLORIDE POTASSIUM CHLORIDE
SEE THAT THE FAC-SIMILE SIGNATURE
IS ON THE LABEL
FIFTY TABLETS—SIX GRAIN
NAKAMO BELL
Trade Mark Reg. U. S. Pat. Off.
Sodium Chloride, Ammonium Chloride, Potassium Chloride
ORANGEBURG, NEW YORK, U. S. A.

IMPORTANT

The information given here is based on the reports of clinical tests in a large New York City Clinic and reports from physicians. As Manufacturing Chemists introducing Nakamo Bell we make no claim as to its usefulness or the correctness of the dosage given.

OF course, you don't believe it and neither did we until we were confronted with substantial clinical proof and then for three years—repeated prescription use, doubling in volume each year.

CHECK this tablet for yourself, as we have done and let results convince you.

SEND FOR SAMPLE IM 7-44

HOLLINGS-SMITH CO.
Orangeburg, N. Y.

Sample Nakamo Bell, please.

.....M.D.

Address.....

Authoritative Survey* Indicates The Value of Bexel Vitamin B-Complex As A Diet Supplement In Industry...

Bexel
VITAMIN B COMPLEX CAPSULES
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VITAMIN B COMPLEX CAPSULES
ONE CAPSULE DAILY WILL FURNISH
Adults and children 12 years or more
Children 6 to 12 years
MANUFACTURED BY
McKESSON & ROBBINS, INCORPORATED
NEW YORK, N.Y. • BRIDGEPORT, CONN. • U.S.A.

Supplementation of Average Diets With Vitamin B-Complex Results Favorably In Reducing Constipation and Fatigue

In a recent survey* of men and women industrial workers, about equally divided between clerical and heavy workers, both groups responded favorably to vitamin B-Complex when used as a diet supplement.

The results of the study demonstrated that supplementation of average diets with vitamin B-Complex had a favorable effect in the reduction of constipation and fatigue. It also indicated a beneficial effect on mental alertness, appetite and sleep. It may also have some value in relation to eye-strain.

The Formula of Bexel is:

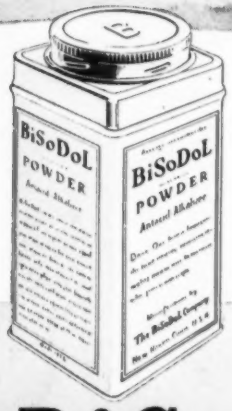
Thiamine hydrochloride (B_1), 333 units
Riboflavin (G), 1 milligram (1000 micrograms)
Pantothenic acid, 0.196 milligrams (196 micrograms)
Niacin, 5 milligrams
Pyridoxine hydrochloride (B_6), 0.130 milligrams (130 micrograms)

** Write for literature.*

McKesson & Robbins, Inc.

BRIDGEPORT • NEW YORK, N.Y.

When a Burp is a Bottleneck!



PRESSURE OF WORK and improper diet often contribute to so-called nervous indigestion and upset stomach due to hyperacidity. In turn, these gastric upsets lead to lowered efficiency on the job, or absenteeism.

BiSoDoL is an effective, pleasant-to-take antacid alkalizer. Industrial physicians find that BiSoDoL helps bring prompt relief in most cases of stomach distress due to excess gastric acid. Send coupon for generous trial size of BiSoDoL powder.

16-OZ. HOSPITAL SIZE

BiSoDoL

REG. U. S. PAT. OFF.

POWDER • MINTS

THE BiSoDoL COMPANY
NEW HAVEN, CONN.

Special Offer to Industrial Physicians

The BiSoDoL Company, New Haven, Conn.
Please send me FREE a trial size of BiSoDoL powder.

NAME_____

COMPANY_____

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Quicker WOUND HEALING

with WHITE'S VITAMIN A AND D OINTMENT

The topical application of the vitamins A and D in combination and in the same ratio as found in cod liver oil results in:

"(1) a remarkable regeneration of all sorts of tissue defects;

"(2) wounds fill more quickly with granulations;

"(3) epithelize more satisfactorily and heal more rapidly than with other methods."*

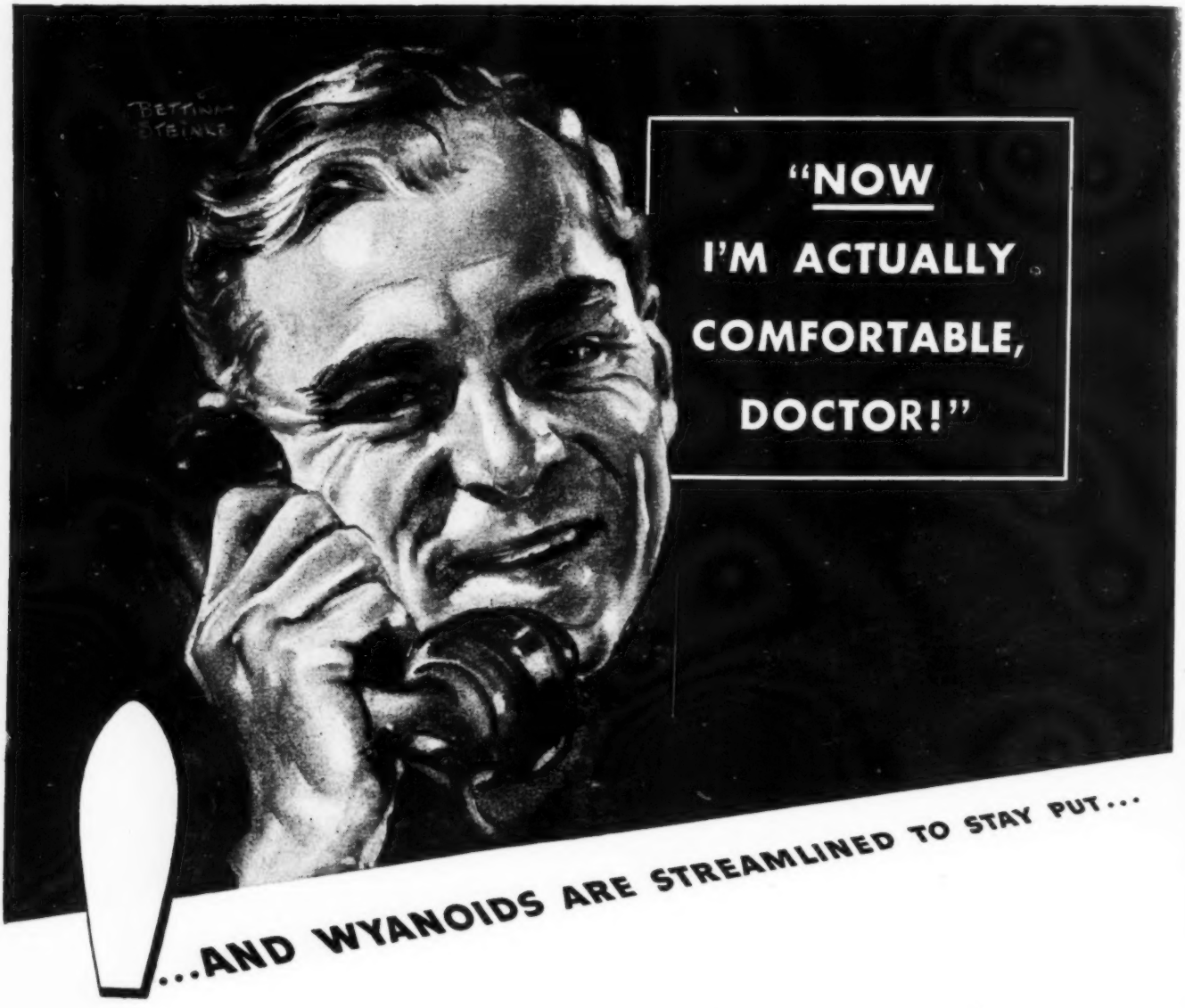
White's Vitamin A and D Ointment now is extensively used in major and minor burns, even of the face; slow-healing post-operative lesions, crushing and avulsive soft-tissue injuries, indolent ulcers and certain dermatologic affections common to industry.

Pleasantly scented; no objectionable oiliness; will not become rancid. In 1.5 oz. tubes; 8 oz. and 16 oz. jars; 5 lb. containers.

Ethically promoted—not advertised to the laity. White Laboratories, Inc., Pharmaceutical Manufacturers, Newark 7, N. J.

**Hardin, P.C.: South. Surg.*, 10:301 (*May*) 1941.

White's PRESCRIPTION *vitamins*



. . . in the treatment of uncomplicated, inflamed, painful, bleeding hemorrhoids not requiring surgical intervention. They are anatomically correct—easily retained above the anal sphincter.

After rectal operative procedures, Wyanoids are of service in allaying pain, controlling tenesmus, checking inflammation. In boxes of 12, with detachable label.

A Wyethical of John Wyeth & Brother, Division WYETH Incorporated, Philadelphia.

FORMULA

Extract of Belladonna 0.5% (equivalent total alkaloids 0.0063%). Ephedrine Sulfate 0.10%. Zinc Oxide, Boric Acid, Bismuth Oxyiodide, Bismuth Subcarbonate and Balsam Peru, evenly distributed in a bland Cocoa Butter base.

WYANOIDS REG. U. S. PAT. OFF. **HEMORRHOIDAL SUPPOSITORIES** *Wyeth*

The annual onslaught by pollens of ragweed, grass, burweed, thistle, cocklebur, is here, and the usual crop of allergic patients is seeking relief from the insomnia-producing symptoms of hay fever and asthma.

Curtailment of travel and increased employment rule out a large percentage of the yearly treks to regions where allergy patients formerly found freedom from symptoms.

air-borne

Amodrine.....

—a distinct advance in allergy therapy—enables the physician to offer relief from the sneezing, coryza, nervousness and general misery suffered by the allergy patient.

- Amodrine combines the antispasmodic, myocardial stimulant, diuretic actions of Aminophyllin, 100 mg. (1½ gr.), with the bronchial and bronchiolar dilator effects of Racephedrine Hydrochloride, 25 mg. (⅜ gr.), and the hypnotic-sedative properties of Phenobarbital, 8 mg. (⅛ gr.), the latter for its sedative action on respiration and its aid in allaying apprehension and nervousness.

Amodrine is supplied in bottles of 100 and 1000 tablets, plain or enteric coated.

G·D·SEARLE & CO.
ETHICAL PHARMACEUTICALS SINCE 1888
CHICAGO
New York Kansas City San Francisco

SEARLE
RESEARCH IN THE SERVICE OF MEDICINE

Amodrine is the registered trade-mark of G. D. Searle & Co.

Primary Dysmenorrhea Relieved in 85% of Cases

The painful, irritating symptoms of primary dysmenorrhea—headache, backache, cramping, faintness, nervous instability—account for many lost working days and decreased efficiency.

Combining treatment of the underlying cause of the cramp-like pain—i.e., abnormal uterine contractions—with relief of the painful symptoms by analgesic medication,

NETHACETIN

Brand of Sympathomimetic Anodyne Tablets

enables the industrial physician to offer relief of this regularly occurring condition.

Clinical studies have shown Nethacetin to be effective in 85% of cases. Most patients are relieved within ½ to 1 hour. Side reactions are rare.

Each Nethacetin Tablet contains ⅔ gr. methylethylamino-phenylpropanol (Nethamine brand) hydrochloride, 3½ grs. acetophenetidin, and 2 grs. acetylsalicylic acid. Dosage is 1 tablet every hour or two until relief is obtained. Usually no more than 3 tablets are required for each period. Nethacetin is supplied in bottles of 100 and 1000.

Trademarks "Nethacetin" and "Nethamine" Reg. U. S. Pat. Off.

MERRELL

116th Year

THE WM. S. MERRELL COMPANY · CINCINNATI, U. S. A.

How to Choose Proper Protection Against Industrial Skin Diseases

WHO MAKES IT? Is the product actually manufactured by the company whose name appears on the label? Is there evidence of research and substantiation of claims made for it? The Milburn Company is sole manufacturer of PLY products, backed by intensive and continuous research in its own as well as impartial laboratories. You take no chances when you specify PLY.

WILL IT WORK? Is it limited to isolated cases or general classifications? Is the product designed to meet YOUR particular requirements? PLY offers the most complete line of protective creams and liquids, with provision for special formulae in cases of unusual combinations of skin hazards. The proof of PLY performance—in ALL cases—is found in its ability to keep workers on the job!

WILL EMPLOYEES USE IT? The best protective is worthless if employees refuse to use it. PLY is the factory favorite because it is easy to apply, it gives the worker protection, forms a cleansing lather (neutral pH) upon removal with plain water. Takes all foreign substances with it, leaving skin smooth, soft and supple. PLY eliminates use of harsh soaps or irritating cleansers.

HOW EXPENSIVE IS IT? In addition to its exclusive protective features, PLY provides savings that are easily figured in cost by volume. Workers need use only one-third as much PLY as compared with ordinary protective products, to get effective coverage of a given area. Both in terms of man-hours saved and actual cost, there's ample reason why the nation's leading industries rely on PLY!

PLY LIQUID PROTECTION

Write for booklet, "The Answer to Industrial Dermatitis"

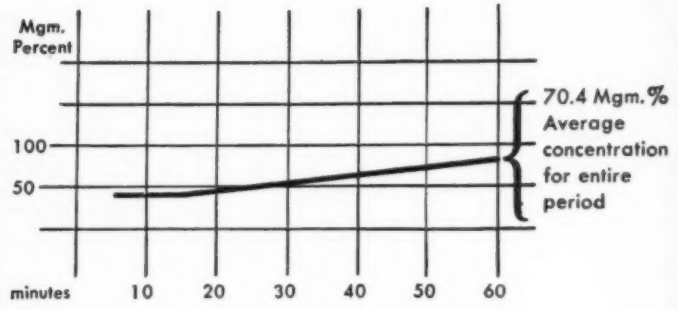
THE MILBURN COMPANY

PIONEERS OF SKIN PROTECTION IN INDUSTRY

3246 E. WOODBRIDGE • DETROIT 7, MICHIGAN

PLY CREAM PROTECTION

One tablet chewed for one hour promptly initiates and maintains a *high* concentration of *locally active* sulfathiazole, averaging 70 mgm. percent saliva over the period of an hour's chewing. Two tablets increases the concentration approximately 20 percent.



NEW, MORE EFFECTIVE METHOD OF TOPICAL CHEMOTHERAPY IN OROPHARYNGEAL INFECTIONS

THE unique value of this new, effective method for the *local* treatment of certain throat infections consists in this:

1. Chewing one tablet provides a *high* salivary concentration (70 mg. per cent) of *dissolved* sulfathiazole . . .

2. that is *maintained* in immediate and *prolonged* contact with oropharyngeal areas which are not similarly reached by gargles or irrigations . . .

3. Chewing two tablets increases this concentration by 20 per cent . . .

4. with a relatively small ingestion of the drug, with either dosage, and consequent negligible systemic absorption.

Typical infections which have shown excellent response to treatment with White's Sulfathiazole Gum are acute tonsillitis and pharyngitis, septic sore throat, infectious gingivitis and stomatitis caused by sulfonamide-susceptible micro-organisms. Also indicated in the prevention of local infection secondary to oral and pharyngeal surgery.

Supplied in packages of 24 tablets, sanitaped in slip-sleeve prescription boxes—*on prescription only*. White Laboratories, Inc., Pharmaceutical Manufacturers, Newark 7, N. J.

White's

SULFATHIAZOLE GUM

For wartime working efficiency

Pluravit, the "different" multiple vitamin supplement, was developed especially for industrial workers.

The daily Pluravit ration is only one pellet per day per worker. Experience has demonstrated that this will effectively prevent vitamin deficiency. As a result workers not only enjoy better health but are likely to find greater enjoyment in working, so that production can be maintained at peak levels.

Available in convenient, sanitary cellophane pouch containing 7, 14 or 28 pellets (for one, two or four weeks' supply), in bottles of 30, 100 and 1000 pellets.

One PLURAVIT *pellet contains:*

Vitamin A	5000 U.S.P. units
Vitamin B_1	2 mg. (666 units)
Vitamin B_2	2 mg.
Vitamin B_6	0.5 mg.
Calcium Pantothenate	1 mg.
Niacinamide	20 mg.
Vitamin C	50 mg. (1000 units)
Crystalline Vitamin D_3	1000 U.S.P. units

WINTHROP

PLURAVIT

Reg. U. S. Pat. Off.

Winthrop Chemical Company, Inc.

INDUSTRIAL DIVISION

NEW YORK 13, N. Y. WINDSOR, ONT.

ARMY E NAVY

Protective
CLEANSING *for* SKILLED HANDS

TO FAVOR RECOVERY in the dermatoses, replace all harsh or irritating skin detergents with ACIDOLATE* Skin Cleanser.

1. It is a water miscible non-lathering mixture of sulfated oils.
2. It contains no soap, alkali or abrasives.
3. It quickly emulsifies cutaneous soil and facilitates its thorough removal by proper rinsing with water.
4. It emulsifies residual ointments and simplifies their removal from the hair or skin.
5. It leaves the skin feeling soft and cool.
6. Reports from ten clinics attest to its value.

★ ★ ★

Specify ACIDOLATE for use wherever soap is contra-indicated. It is supplied in 8 ounce dispenser bottles and in gallons through leading drug stores.

ACIDOLATE
REG. U.S. PAT. OFF.
Skin Cleanser

*The word Acidolate is the registered trademark of National Oil Products Co.

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Distributed for NATIONAL OIL PRODUCTS COMPANY by:

RARE CHEMICALS, INC.
HARRISON, NEW JERSEY

✦

THE GALEN COMPANY
BERKELEY, CALIFORNIA

Vitamins Alone

MAY NOT BE ENOUGH

The current popularization of the importance of vitamins, though true in most respects, may prove harmful because of the decreased emphasis placed upon other essential nutrients. A good nutritional state, so specially important for the industrial worker, can only be achieved by satisfying all nutritional requirements, not merely those of vitamins, but of minerals, proteins, and calories as well.

A food supplement in the literal sense of the word, Ovaltine is a balanced mixture of nutrients, which provides virtually all metabolic essentials. When taken twice daily with the average diet, it makes good the deficiencies usually encountered, and converts the total daily intake to nutritionally satisfying levels. The easy digestibility of this delicious food drink is an added advantage.

THE WANDER COMPANY, 360 N. MICHIGAN AVENUE, CHICAGO 1

Ovaltine

Three daily servings (1½ oz.) of Ovaltine provide:

	Dry Ovaltine	Ovaltine with milk*		Dry Ovaltine	Ovaltine with milk*
PROTEIN	6.0 Gm.	31.2 Gm.	VITAMIN A	1500 I.U.	2953 I.U.
CARBOHYDRATE	30.0 Gm.	62.43 Gm.	VITAMIN D	405 I.U.	480 I.U.
FAT	2.8 Gm.	29.34 Gm.	THIAMINE	.9 mg.	1.296 mg.
CALCIUM	.25 Gm.	1.104 Gm.	RIBOFLAVIN	.25 mg.	1.278 mg.
PHOSPHORUS	.25 Gm.	.903 Gm.	NIACIN	3.0 mg.	5.0 mg.
IRON	10.5 mg.	11.94 mg.	COPPER	.5 mg.	.5 mg.

*Each serving made with 8 oz. of milk; based on average reported values for milk.

Hot Weather and PSORIASIS

Hoped for summer improvement often fails to materialize in psoriasis; 25.5% of cases *fail to improve*, while 14.3% are actually *rendered worse*.

RIASOL retains its high level of effectiveness in treating stubborn summer psoriasis. Despondent patients find new mental assurance with the clearing of ugly, blemished areas. Protracted freedom from recurrences is a common RIASOL experience.

RIASOL contains 0.45% mercury chemically combined with soaps, 0.5% phenol and 0.75% cresol. More massive, but *less effective*, inorganic preparations contain 35 times more mercury; RIASOL'S inherent safety factor is thus self-evident.

PATIENT cooperation is assured through RIASOL'S non-staining, washable vehicle. No odor attends the use of RIASOL'S *invisible, economical* thin film.

Apply RIASOL daily, after a mild soap bath and thorough drying. After one week, adjust to the patient's progress.

RIASOL is not advertised to the laity. It is available in 4 oz. and 8 oz. bottles.

Generous clinical package on request.

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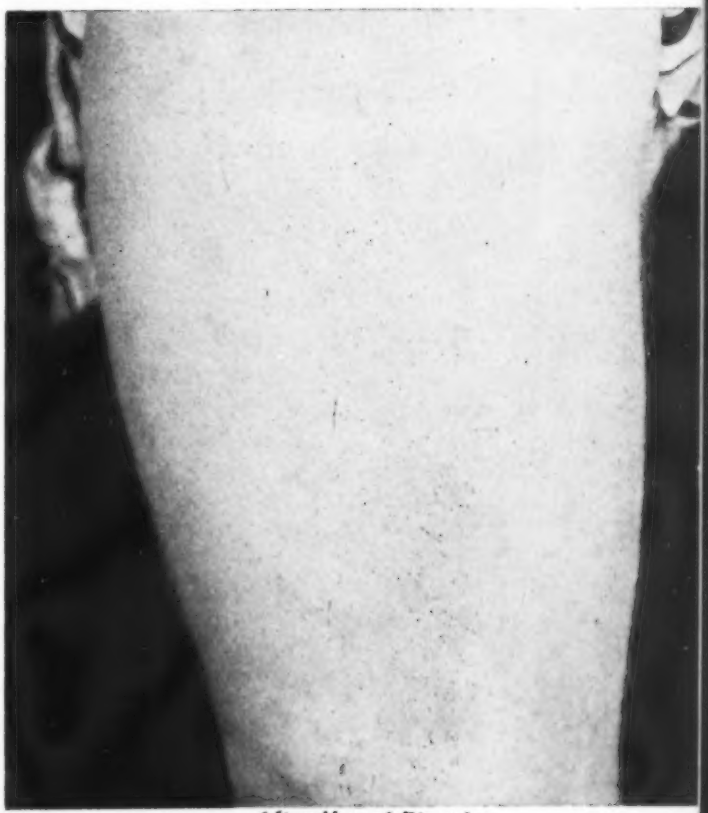

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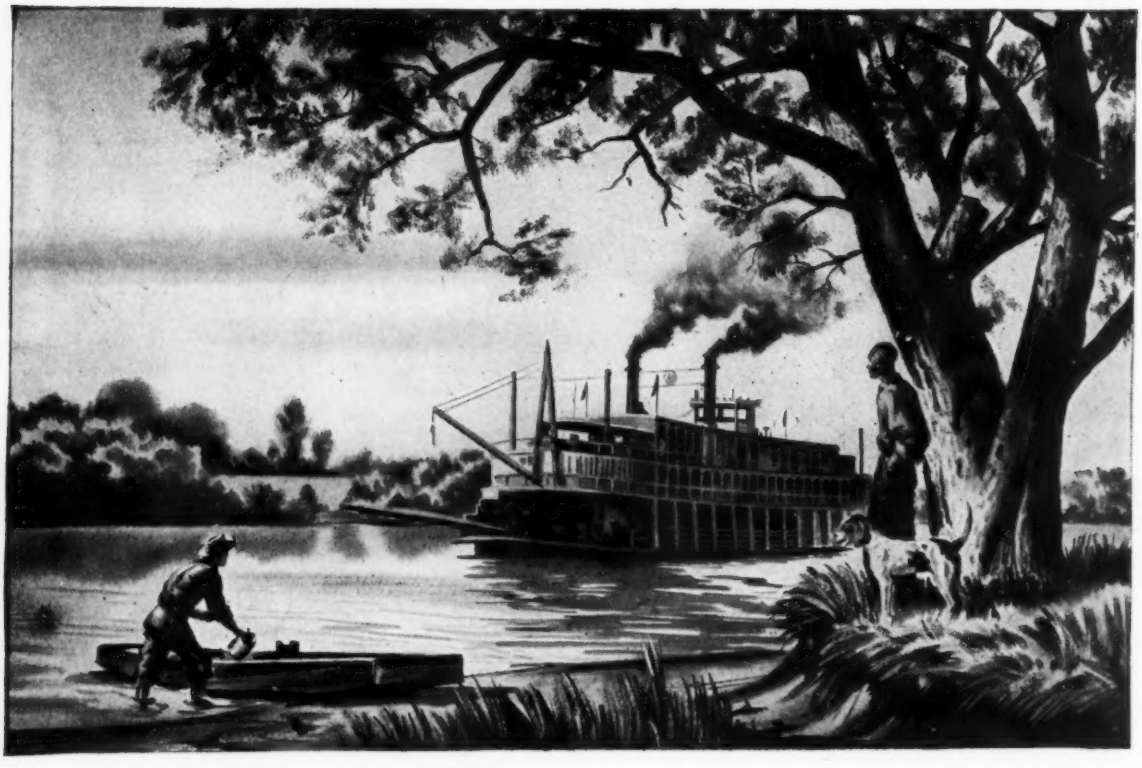
RIASOL for PSORIASIS

THE MISSISSIPPI RIVER PROVES THE POTENCY OF

Liquid Bulk



FLOWING through the Mississippi Valley, "Old Man River" carries along over a million tons of waste every day, depositing it into the Gulf of Mexico.

Similarly, in the intestinal tract, there is no more efficient method of flushing away waste than by the use of *liquid bulk*—as formed by Sal Hepatica plus water.

Clinical and laboratory tests prove that:

★ in the isolated loop of a dog's ileum, a laxative solution of Sal Hepatica increased the liquid bulk by 34 per cent in one hour.

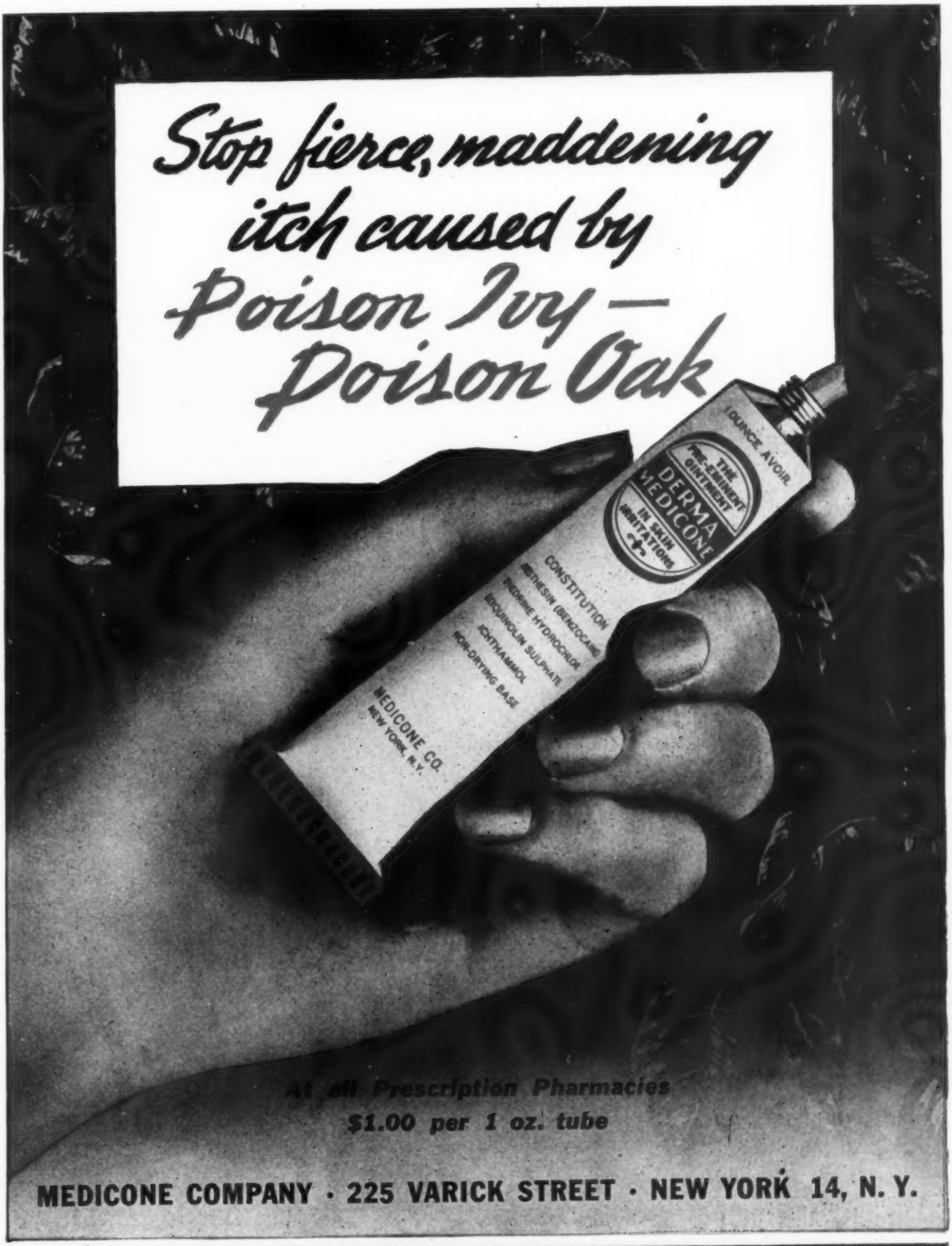
★ in thistle tube experiments, a Sal Hepatica solution increased the liquid bulk by 100 per cent within 6 to 12 hours.

★ Sal Hepatica's liquid bulk helps stimulate bowel muscles, maintain a proper water balance. And the salines of Sal Hepatica relieve gastric acidity, help promote the flow of bile.

Bristol-Myers Company, 19XX West 50th St., New York 20, N. Y.

TO HELP FLUSH THE INTESTINAL TRACT

Sal Hepatica SUPPLIES **Liquid Bulk!**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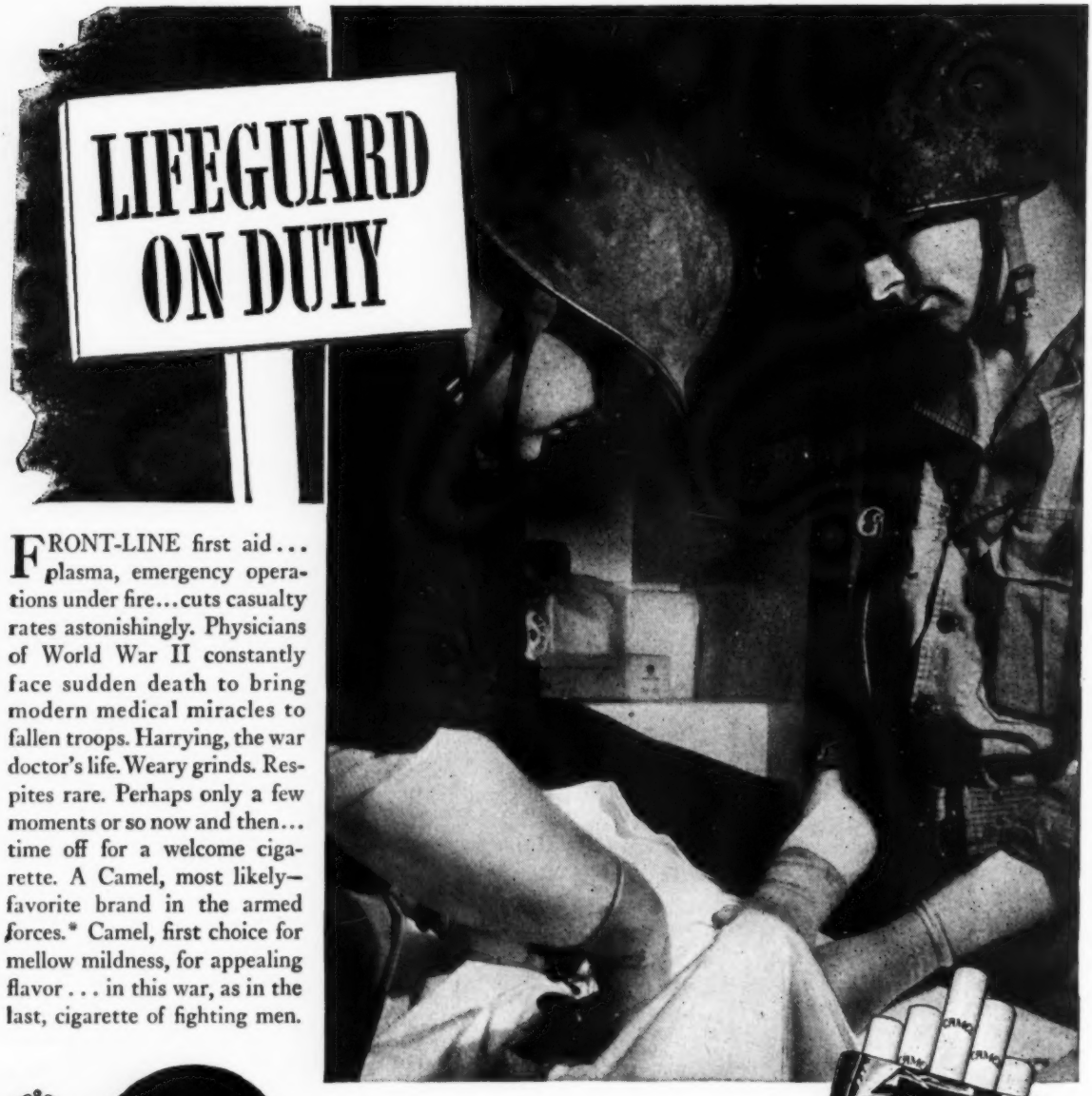

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1st in the Service

*With men in the Army, the Navy, the Marine Corps, and the Coast Guard, the favorite cigarette is Camel. (Based on actual sales records.)

● New reprint available on cigarette research — Archives of Otolaryngology, March, 1943, pp. 404-410. Camel Cigarettes, Medical Relations Division, One Pershing Sq., New York 17, N.Y.

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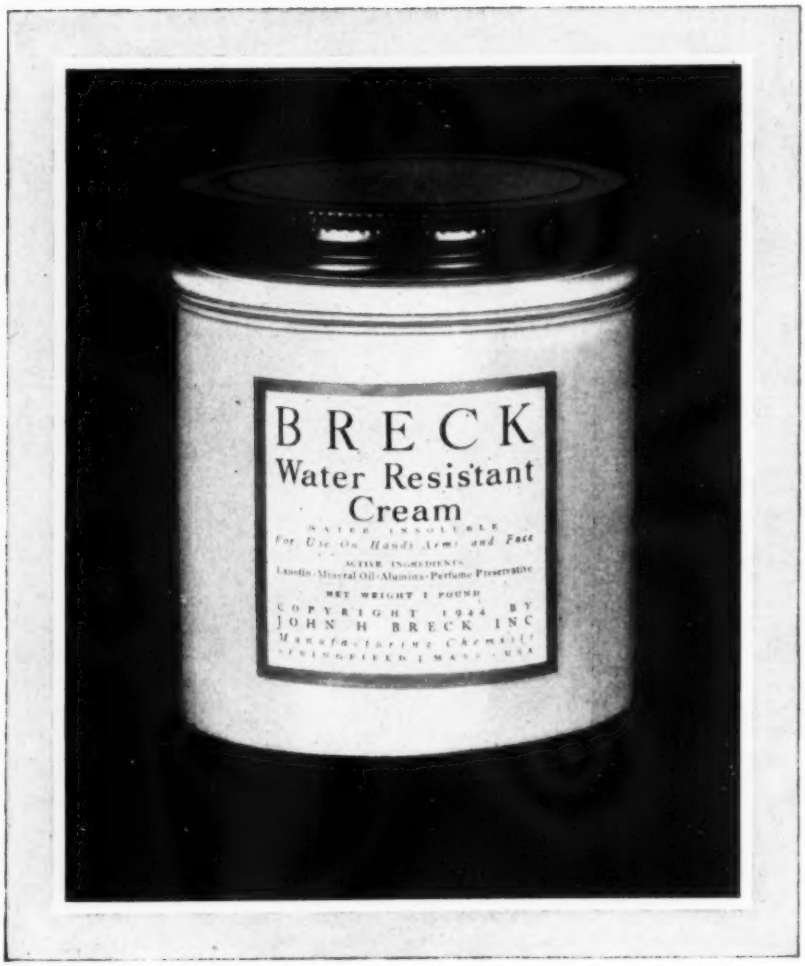

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- An inkless, direct writing recorder, designed and developed by the Electro-Physical Laboratories, Inc., after years of research and experimentation
- Completely eliminates all photographic procedures
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FIGURE A—Photographic Method FIGURE B—EPL Method FIGURE C—Calibration

The exact similarity between the standard photographic cardiogram and the direct instantaneous cardiogram on this new EPL instrument is indicated in Figures A and B, which are records of the same subject taken a few minutes apart.

NOTE: It has been determined by a series of measurements that cardiograms made on this instrument have no clinically detectable deviations from those made with the use of a high speed inertia-less cathode ray oscilloscope.

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Sodium Chloride	replaces salt lost in perspiration and excessive urination induced by drinking large quantities of liquids
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Vitamin C	Improves appetite; combats infection and bacteria toxins; lack of this vitamin causes weariness, headaches, restlessness, impaired digestion.

Cevasal is sold in bottles of 100, 1000, or 25,000 tablets. Attractive single tablet dispensers are available; fixed to walls or posts near the water founts, these dispensers encourage and facilitate use of the tablets by the employes. Prices on request.

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As a medicated poultice — applied comfortably hot — ANTIPHLOGISTINE maintains *moist heat* for many hours. Is effective in relieving the pain, swelling and muscle spasms due to sprains, strains and contusions.

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Formula: Chemically pure Glycerine 45.000%, Iodine 0.01%, Boric Acid 0.1%, Salicylic Acid 0.02%, Oil of Wintergreen 0.002%, Oil of Peppermint 0.002%, Oil of Eucalyptus 0.002%, Kaolin Dehydrated 54.864%.

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Case X—Massachusetts General Hospital Patient—Victim of Cocoanut Grove Fire.

NO. 1—Second degree burns of face and ears and third degree scalp burn covered by primary occlusive dressing on night of admission. Patient had a total burn surface of 12.5 per cent.

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NO. 3—Final view of the face on the 55th day showing absence of scarring, and normal contours. The scalp healed without grafting.

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In treatment of burn surfaces the physician will find 'Vaseline' Petroleum Jelly — plain or borated—is prompt and effective.

*Ann. of Surg. 117:885 (June) 1943.

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SULFAREA: SKIN INFECTIONS
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IN Sulfarea and Sclorea the clinician obtains two highly efficient methods of applying the sulfonamides.

Sulfarea, the ointment, is a ready-prepared surgical dressing for superficial lesions, infected burns, certain pyogenic skin infections, traumatic wounds, leg ulcers and the like.

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Galatest is the dry reagent for the immediate detection of urine sugar. If sugar is present to any pathological degree—powder turns gray or black immediately—depending on the amount of urine sugar present.

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Color Reaction Immediately

Handy Kit Available for Diabetic Patient or Medical Bag

Contains one vial Acetone Test (Denco), one vial of Galatest (enough in each vial for at least 100 tests), a medicine dropper and a Galatest color chart. This handy kit and refills of Acetone Test (Denco) and Galatest can be obtained at all prescription pharmacies and surgical supply houses.

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THE DENVER CHEMICAL MANUFACTURING COMPANY
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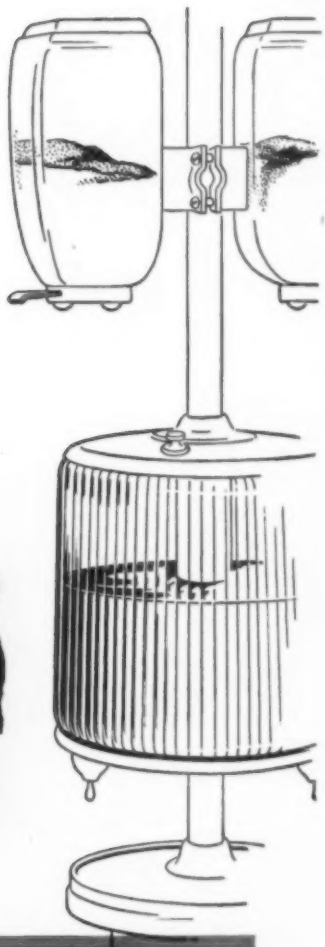

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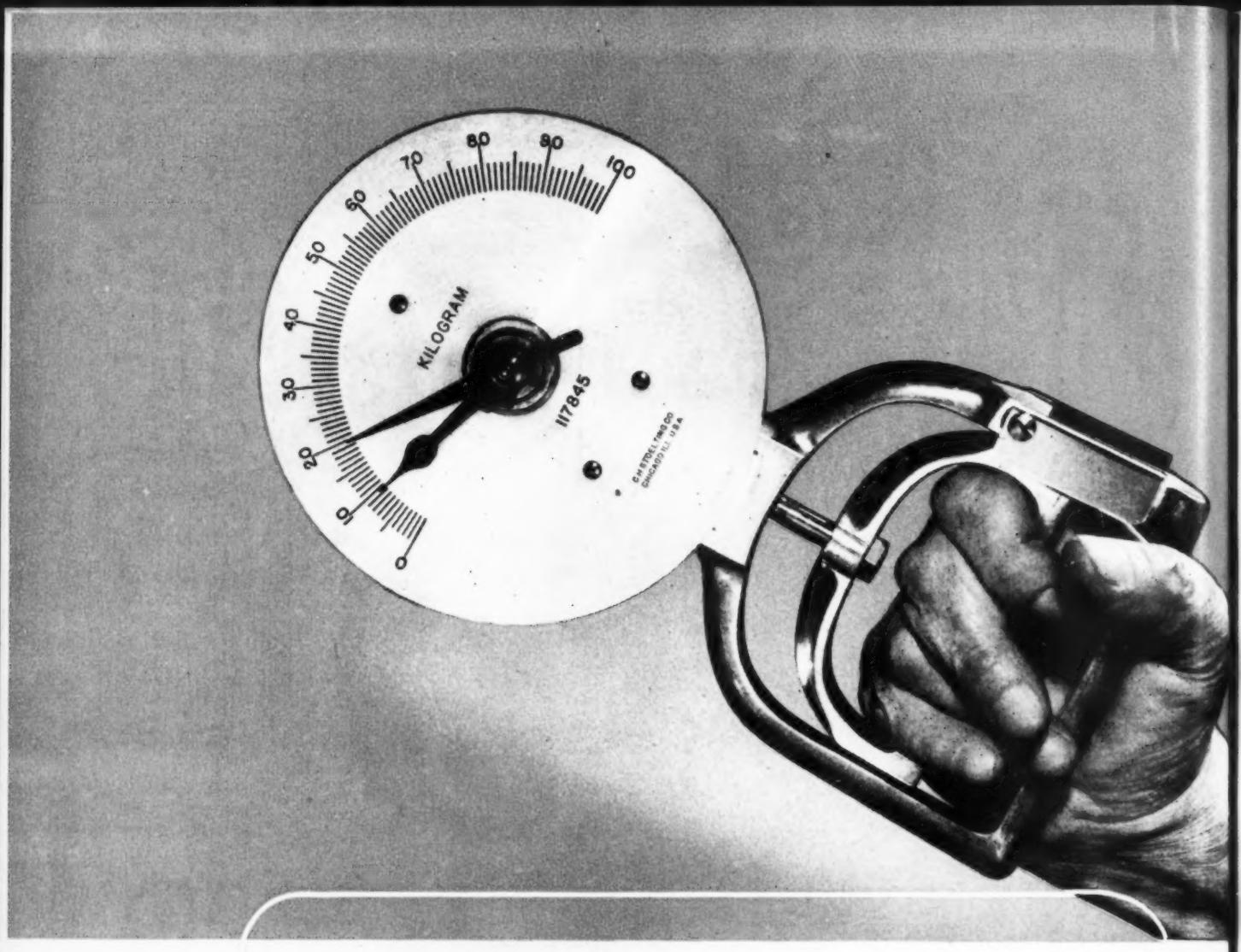

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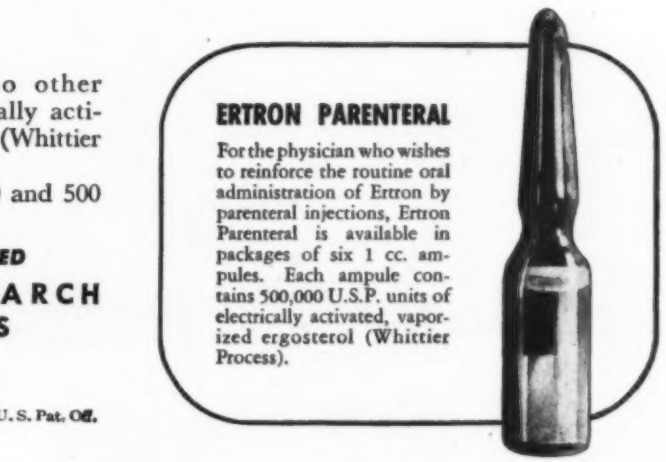

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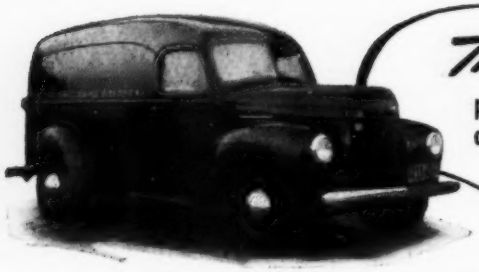

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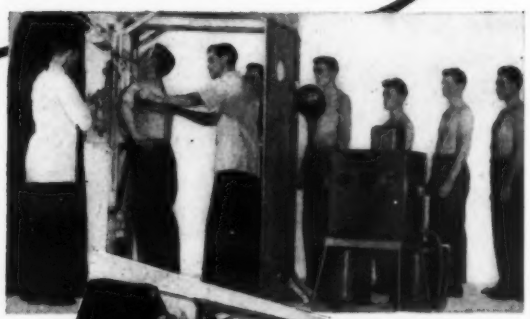

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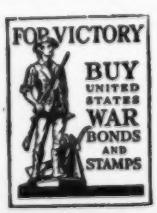

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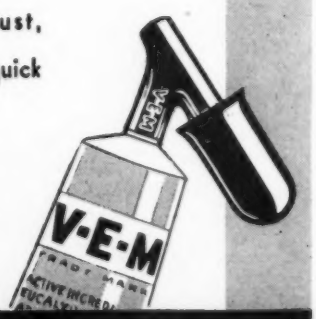

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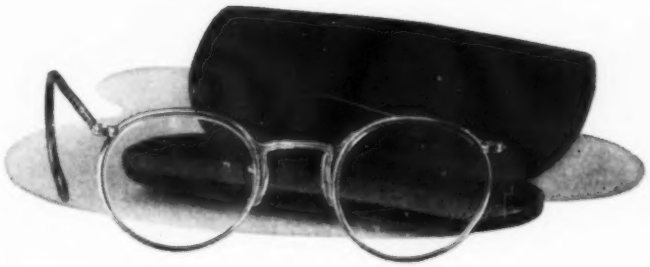

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AO GOGGLES protect eyes & man-hours & profits

They're more than an investment in eye protection. For the price you spend for AO Goggles, you give a worker freedom from fear of injury. You let him concentrate on his job. You help him put in more man-hours. *And you keep production up and costs down.*

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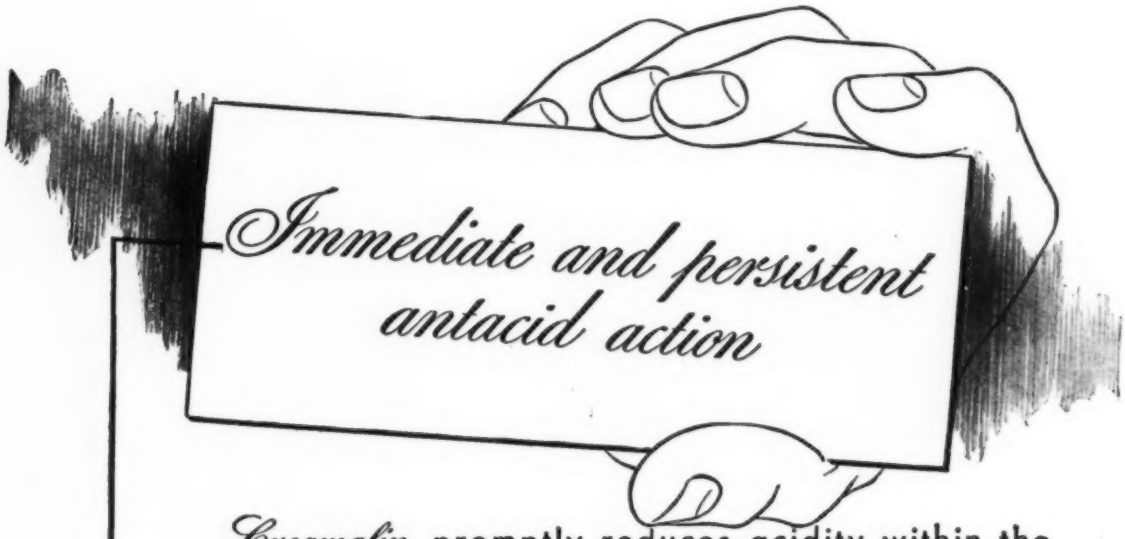

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Creamalin promptly relieves pain and heartburn associated with gastric hyperacidity.

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Azochloramid preparations have proved valuable in treating the traumatic wounds of industry as well as those encountered among our armed forces. The reduced healing time and shortened period of hospitalization effected by prompt control of infection is a welcome contribution to greater industrial efficiency. The various forms of Azochloramid provide ready adaptability to the task at hand.

For antiseptic dressings and packings that remain moist

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For direct application to granulating wounds

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For lavage, wet dressings, hot soaks and compresses

SOLUTION OF SALINE MIXTURE OF AZOCHLORAMID (aqueous, prepared from powder or tablets)

and **SOLUTION OF SURFACE ACTIVE SALINE MIXTURE OF AZOCHLORAMID (aqueous, prepared from powder)**

Azochloramid preparations are *Bactericidal*

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They are strongly deodorant

Available through your usual source of supply

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"In our plant hospital we have used the 1/500 solution in triacetin, routinely in wounds as a prophylaxis against infection. After two and one-half years of experience, we are convinced that in any raw surface where infection is threatened, or even possible, the daily dressing by gauze moistened in the above preparation is a sure guarantee against suppuration. This insures healing per primum, and lessens both temporary and permanent disability."

Antiseptics and Their Action, R. M. Freeman: *Industrial Medicine*, February, 1940.

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Iodine Educational Bureau, Inc.
120 Broadway, New York 5, N. Y.

★ ★

Control ATHLETE'S FOOT IN YOUR PLANT WITH KOPERTOX

KOPERTOX (solution of copper naphthenate in petroleum hydrocarbons), powerful fungicide . . . non-irritant even to sensitive, eczematized skin . . . helps control Athlete's Foot and other common fungus infections with striking efficiency. Tested by eminent dermatologists in leading hospitals, KOPERTOX is rapidly becoming a drug of choice for the control of Athlete's Foot.

Simply instruct your workers to paint KOPERTOX twice daily on the affected areas as well as between the toes and around the toe nails (favorite sites of Athlete's Foot fungus growth). Cotton applicators are contained in each package.

And remember . . . shoes are a primary source of reinfection. KOPERTOX is an ideal decontaminant for footwear. Sprayed into the shoes with an atomizer, it kills the fungus without injury to the leather.

For the control of Athlete's Foot in your plant, let KOPERTOX prove to you its unsurpassed effectiveness. Use the handy coupon for a generous trial supply of KOPERTOX.

KOPERTOX
LABORATORIES
7 SPRING LANE, BOSTON 9, MASS.

KOPERTOX LABORATORIES
7 Spring Lane, Boston 9, Mass.

Please send trial supply of KOPERTOX, without charge or obligation.

Name_____

Address_____

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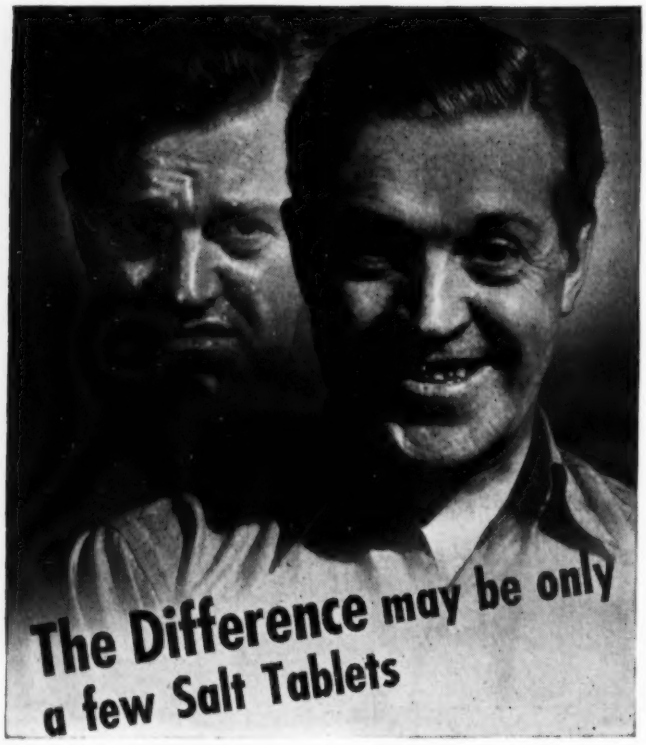


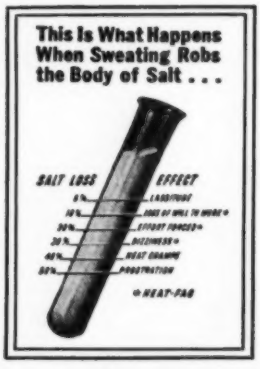
. . . and they cost less than 1 cent a man per week

Salt is vital to proper body tone. Loss of salt through sweat can easily transform an eager, alert, comfortable worker into one who is fatigued, miserable, careless.

Loss of salt dehydrates the body, thickens the blood, destroys the equilibrium of body fluids. The results are Heat-Fag, inalertness, accidents, heat prostrations.

The preventive is salt and water — water to restore the moisture lost in sweat, salt to restore the saline balance. Water alone won't do it. Under hot, "sweaty" conditions water alone dilutes the blood and causes heat cramps.

Industrial physicians with America's greatest manufacturing plants have found that the easy, simple, economical way to provide essential salt is Morton's Salt Tablets at every drinking fountain. A tablet with every drink of water is all that's necessary to prevent Heat-Fag, heat cramps, heat prostrations—to keep workers alert, at peak production.



QUICK DISSOLVING
(Less than 30 Seconds)

This is how a Morton's Salt Tablet looks when magnified. See how soft and porous it is inside. When swallowed with a drink of water, it dissolves in less than 30 seconds.

Case of 9000, 10-grain salt tablets - - - - - - $2.60

Salt-Dextrose tablets, case of 9000 - - - - - $3.15

MORTON'S Heat-Fag SALT TABLETS

Morton's Dispensers

They deliver salt tablets, one at a time, quickly, cleanly—no waste. Sanitary, easily filled, durable.

800 Tablet size - - - $3.25

Order from your distributor or directly from this advertisement . . . Write for free folder.

MORTON SALT COMPANY, Chicago 4, Illinois

Effective Convenient Economical

THE effectiveness of Mercurochrome has been demonstrated by more than twenty years of extensive clinical use. For professional convenience Mercurochrome is supplied in four forms—Aqueous Solution in Applicator Bottles for the treatment of minor wounds, Surgical Solution for preoperative skin disinfection, Tablets and Powder from which solutions of any desired concentration may readily be prepared.

Mercurochrome

(H. W. & D. brand of merbromin, dibromoxymercurifluorescein-sodium)

is economical because stock solutions may be dispensed quickly and at low cost. Stock solutions keep indefinitely.

Mercurochrome is antiseptic and relatively non-irritating and non-toxic in wounds.

Complete literature will be furnished on request.

HYNSON, WESTCOTT & DUNNING, INC.

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Designed to ASSIST *the* PATIENT

THE "RAMSES"* Diaphragm Introducer, designed after consultation with gynecologists, engages the rim of the "RAMSES" Flexible Cushioned Diaphragm at two points, shaping it into an elongated oval, thus enabling it to pass readily into the vagina. By providing complete control over the direction of travel, the "RAMSES" Diaphragm Introducer assures proper and accurate placement of the diaphragm.

1. The wide, blunt tip of the "RAMSES" Diaphragm Introducer is designed to prevent even the remote chance of accidental penetration of the uterus during insertion of the diaphragm.

2. Made of easily cleansed plastic, the "RAMSES" Diaphragm Introducer has no minute crevices to harbour bacterial growth—no sharp projections to cause possible vaginal injury.

3. The broad, rounded hooked end of the "RAMSES" Diaphragm Introducer—used for diaphragm removal—guards against possible entry into the urethra.

Your patients obtain the "RAMSES" Diaphragm Introducer when you specify the "RAMSES"-Physicians Prescription Packet No. 501.

"RAMSES" Gynecological Products are sug' gested for use under the guidance of a physician only. They are available through recognized pharmacies.

ACCEPTED AMERICAN MEDICAL ASSN. Council on Pharmacy and Chemistry

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Gynecological Division
JULIUS SCHMID, INC.
Established 1883
423 West 55 St.
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Comfortable . easy-to-wear

RESPIRATORY PROTECTION *by* M·S·A

AGAINST HARMFUL DUSTS, FUMES, MISTS, PAINT-SPRAY VAPORS, LIGHT CONCENTRATIONS OF ORGANIC AND ACID GASES

TRANSPARENT:

THE *Clear-Vue* MODEL

DUSTFOE RESPIRATOR

Officially approved by the U. S. Bureau of Mines for All-Dust protection, the Clear-Vue Dustfoe Respirator has facepiece and filter container of strong *transparent* plastic—permitting quick visual check of filter type, seal, adjustment and state of cleanliness without disassembly. Durable, odorless, non-corrosive, non-conductive of electricity or heat—tops in comfort, too! Write for descriptive Bulletin No. CM-6.

TWIN CARTRIDGE:

THE M·S·A *Comfo*

CHEMICAL CARTRIDGE RESPIRATOR

For protection against vapors encountered in paint-spraying operations, and also against light concentrations of toxic or irritating organic and acid gases—occurring singly or in combinations. The factory-packed twin chemical cartridges are quickly replaceable, afford maximum breathing ease, and long service life. Comfo-type facepiece fits any face; easy to clean and sterilize when desired. Write for Bulletin No. EM-3.

METAL FUME SAFETY:

THE M·S·A

Comfo

METAL FUME RESPIRATOR

Wherever metal fumes are a hazard, this U. S. Bureau of Mines-approved respirator is preferred—for protection, lightweight wearing ease, and durability. Of basic Comfo design, the respirator protects against inhaling the toxic fumes of lead, cadmium, zinc and a wide variety of metals when burning, cutting or molding, etc. Filters have high efficiency—are quickly replaceable. Bulletin CR-6.

PLASTIC FILTER CONTAINERS:

THE M·S·A

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DUST RESPIRATOR

The original, favorite twin-filter Comfo Dust Respirator—now built with filter containers of high-strength plastic. Thinner, rounded edges improve downward and sidewise vision; even lower resistance to airflow has been achieved—with better appearance! U. S. Bureau of Mines-approved for All-Dust protection—wearer-approved for comfort and sturdy durability. Bulletin No. CR-9.

MINE SAFETY APPLIANCES COMPANY

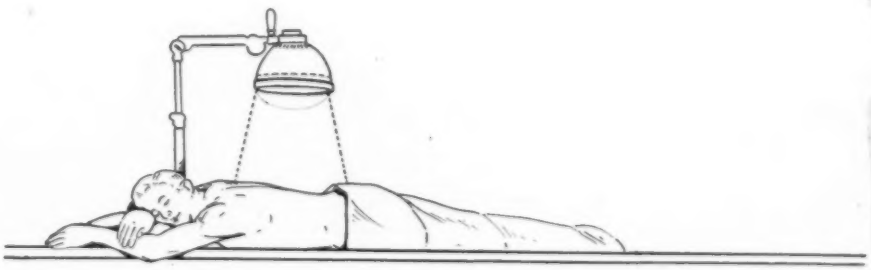
BRADDOCK, THOMAS AND MEADE STREETS

PITTSBURGH, PA.

INFRA-RED IN YOUR FIRST-AID ROOM!

A breakdown of industrial accidents shows that the incidence of sprains, strains and contusions ranks next to burns and cuts.

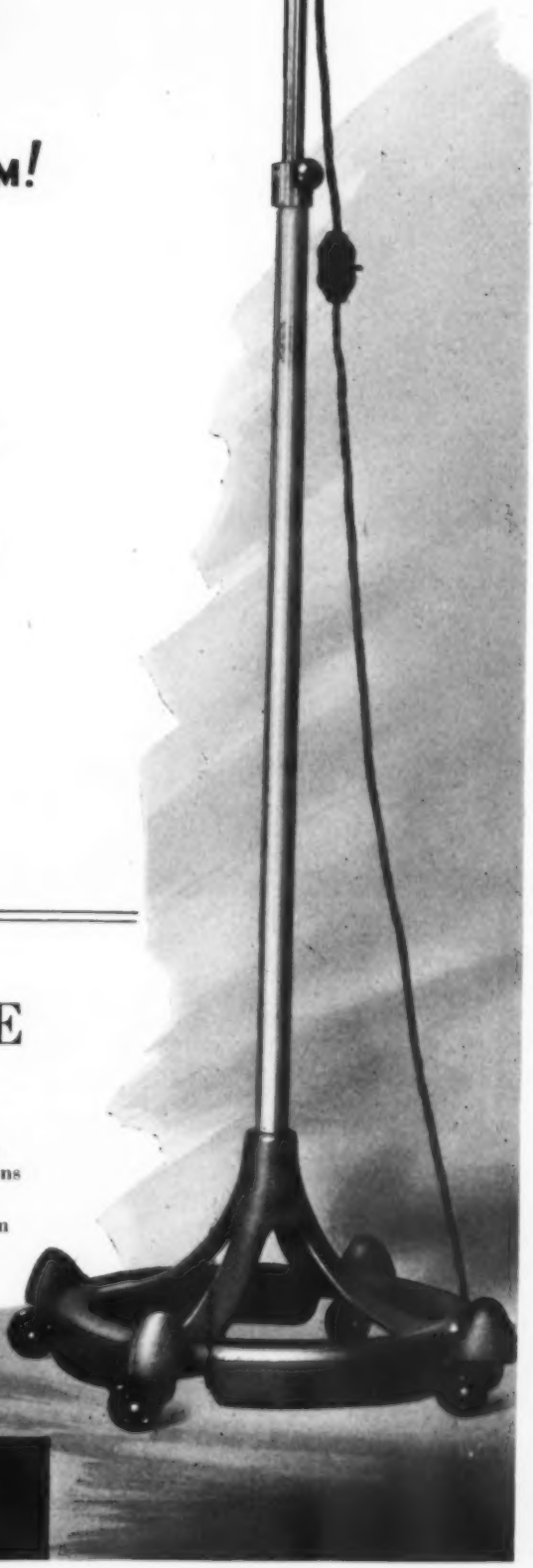
In these cases the use of infra-red is advantageous. Infra-red exerts a physiologic sedative and analgesic effect by increasing the local blood supply and reducing pain.



THE *Burdick* ZOALITE

is adaptable to local or general irradiation. It provides constant controlled heat without weight or pressure on the area treated.

Industrial Indications
Sprains • Strains • Contusions
Traumatic pain
Keep moist dressings warm
Reduce muscular spasm



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THE ASTRONOMER can accurately predict, thousands upon thousands of years in advance, the path or position of every visible star and planet.

The physician can accurately predict the response in patients with uncomplicated pernicious anemia when Solutions Liver Extract, Lilly, are administered in regular and adequate doses. Predictable results are made possible because each manufactured lot is clinically standardized on known cases of pernicious anemia in relapse. In the average uncomplicated case, Solutions Liver Extract, Lilly, will produce a standard reticulocyte response and cause the red-blood-cell count to return to normal within a period of sixty days. Eli Lilly and Company, Indianapolis 6, Indiana, U.S.A.

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